EFFECTS OF VERBAL AND NONVERBAL AFFILIATION ON INITIAL INTERACTIONS BETWEEN HANDICAPPED/ NONHANDICAPPED PERSONS DURING EMPLOYMENT INTERVIEWS

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A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Communication

1982

ABSTRACT

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Purpose of this discourse is development and use of effective communication strategies to address the pressing problem of unequal employment opportunities for physically handicapped persons. It represents an initial attempt to build substantive, deductive theory from which to conduct empirical research focusing on dyadic interactions between handicapped/nonhandicapped persons. Based on current developments in interpersonal communication, a first approximation of axiomatic theory and a recursive model are proposed, adopting an uncertainty reduction paradigm. Fifteen theorems deduced from the theory were tested via exploratory research in an actual employment interview context.

Four verbal and four nonverbal behaviors were manipulated simultaneously at three levels of congruency to form a composite index of the primary independent variable, verbal/nonverbal affiliation. Two types of dyadic interaction, nonhandicapped/nonhandicapped and handicapped/nonhandicapped, comprised the second independent factor, suggestive of a two-by-three factorial design. Two-way ANOVA procedures were used to assess main and conjoint effects of these

predictors on five independent variables: communicative certainty, state anxiety, interpersonal attraction, perceived interpersonal attraction and perceived state anxiety. One hundred and forty-four participants were exposed to a videotape record of the stimulus message during one hour, standardized employment interviews.

Four of five theorems predicting a main effect from verbal/nonverbal affiliation received full or partial support. Predicted linear effects attributable specifically to the presence of a handicapped person in dyadic contexts did not typically occur. Several conjoint effects emerged contrary to prediction, indicating that relations among these variables are more complex than the linear associations hypothesized. Some evidence was found suggesting that nonhandicapped receivers do not respond in the same manner to incongruent verbal/nonverbal messages in general or nonverbal affiliative cues in particular when the source is a handicapped versus nonhandicapped counterpart.

Accepted by the faculty of the Department of Communication, College of Communication Arts and Sciences, Michigan State University, in partial fulfillment of the requirements for the Doctor of Philosophy degree.

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Keith Adler

To ones I love,
whose loving sacrifice
I cannot requite . . .

Dottie
Debra
Jeff
Bruce

ACKNOWLEDGMENTS

Indeed, . . . no man stands alone! Several persons deserve more than this page can provide for their indelible marks on my person and education. If no man is an island, Dr. Gerald Miller is a mountain . . . of intellectual acumen and professional achievement. Most graduate students need an academic hero; few are privileged to sit at the feet of Gamaliel; none have had a better example to emulate. Dr. Miller, I am proud to have been your student, advisee and friend. Also, thanks to you and Pearl Ann for the pleasantries of home and company.

To the extent that this work reflects quality, it reflects the spartan influence and tireless patience of Dr. Norman Fontes. It is difficult to state, more so to overstate, my indebtedness to Norm.

I thank the Department of Communication for providing the resources that made this work possible and the person singly, most responsible for its academic excellence, Dr. Erwin Bettinghaus. His knowledgeable commentary made the difference between an acceptable dissertation and publishable research. In a similar vein, I am indebted to Dr. Judee Burgoon who conscientiously poured over these pages and lengthy preliminary papers, often on short notice at the expense of private time. I have learned from her

critical insights on methodology, logic and style.

Special thanks are due Dr. William Crano, Department of Psychology, for his willingness to serve on my committee. As scholar, teacher and person the man has class. This project might never have been completed in lieu of his positive comments and encouragement during preliminary examinations. I regret that he was unable to serve the duration due to a well-deserved leave of absence.

Dr. Keith Adler did what you would hesitate to ask, except of a trusted friend. Thank you, Keith, for stepping in at the last moment to bring this marathon to closure. We will not forget you and Carol.

Today, as I write, retired Ruth Langenbacher is typing to help meet a deadline. What can I say, Ruth, to let you know how much I appreciate your skillful arts and crafts these many years. My grandchildren will hear of you. We could not have done it without your help.

It has been difficult to order these acknowledgments. As all will know, the last wine is not always least. Dr. Arnold Schuring, lifelong friend and surgeon, deserves the utmost credit for this accomplishment. He believed when I wouldn't; he called when I couldn't; he gave when a man shouldn't! Arn, you know my sentiments. Many thanks to you and your otolgic group for financial and other more important means of support undergirding this research.

I am deeply grateful to all of you.

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CHAPTER I

THE THEORY

Introduction

A recent survey conducted by the President's Committee on Employment of the Handicapped indicates that one of every eleven Americans has some disability. These persons presently constitute a minority group subject to adverse educational, economic and employment discrimination. A significant segment of this minority is involuntarily relegated to a dependency role in which they become wards of the state. The plight of the handicapped is exacerbated by attitudinal factors which impede meaningful social discourse with nonhandicapped persons, and communication problems tend to restrict their complete integration into the productive mainstream of society.

Recent literature addressing problems encountered by physically handicapped persons (e.g., Goffman, 1963; Comer & Piliavin, 1975; Park, 1975) differentiates physical and psychological barriers which inhibit such individuals during interactions with nonhandicapped persons. Physical barriers such as architectural impediments are relatively easy to remove. Psychological barriers may arise in: (1) the handicapped person's perception of him/herself; (2) the handicapped person's perception of nonhandicapped counterparts; and (3) the nonhandicapped person's perception of

the handicapped. These mutual perceptions appear to influence the manner in which handicappers and nonhandicapped persons interact (Goffman, 1963). Their interactions may, in turn, reinforce or alter existing attitudes of both parties. Similar effects may also accrue from a decision not to interact.

Two general research foci are apparent in the literature: (1) assessment of attitudes held by each group of persons, and (2) investigation of the interaction process between these two individual types. Review of the literature suggests that considerable attention has been devoted to the former issue. For example, extensive attitudinal studies by Siller, Chipman, Ferguson and Vann (1967) conclude that current attitudes toward handicapped persons contribute to a serious problem involving "strain in social interaction" during fact-to-face encounters. The strain may result from both participants being uncertain about the most appropriate communication strategy to employ in order to maximize the quality of their interactions. The implication of this research is that "reduction of the 'sticky' problems in initial and subsequent encounters would be a major help in reducing anxiety about dealing with the handicapped" (Siller et al., 1967:65).

Regarding the interaction process more limited research to date indicates that during interactions with handicappers, nonhandicapped persons tend to: (1) increase their physical

distance (Kleck, 1969; Worthington, 1974); (2) terminate the interaction more quickly and exhibit less variance in verbal behavior (Kleck, Ono & Hastorf, 1966); (3) demonstrate greater motoric inhibition, i.e., restrict their nonverbal behavior (Kleck, 1968), and (4) exhibit more anxiety (Marinelli & Kelz, 1973; Marinelli, 1974). Furthermore, nonhandicapped individuals report more emotional discomfort following interaction (Kleck, 1966).

Four of eleven different areas suggested for future research by Richardson (1976) concern the problem of strain between handicappers and nonhandicapped persons during social interaction. Specifically, little is known about factors influencing various behavioral distortions which develop on the part of both participants during such interactions. Moreover, it is intuitively reasonable to expect that identification of specific anxiety-producing (or reducing) communication behavior which may originate with either party would be a significant first step toward elimination of these problematic distortions. Siller et al. (1967) report anecdotal evidence indicating the heuristic promise of this approach.

Among the host of relevant variables, few communication scholars will deny that interpersonal transactions are largely dependent upon the effectiveness of verbal/nonverbal cues exchanged. Furthermore, certain nonverbal cues (e.g., illustrators, regulators, and affect displays) are

believed to be closely associated with, and auxiliary to, linguistic behavior (Harrison, 1974; Ekman & Friesen, 1969). Under normal circumstances these nonverbal counterparts of language may serve to repeat, substitute for, complement, accentuate, contradict or regulate verbal communication (Burgoon & Saine, 1978). Assuming their validity in this context, these assertions bear serious implications for physically handicapped persons who may also be communicatively handicapped particularly in the nonverbal realm, i.e., they may be unable to effectively encode appropriate nonverbal cues as a result of impairment. Consequently, handicappers with normal verbal capabilities may frequently display nonverbal behaviors which are perceived to be incongruous with their verbal communication. Such verbal versus nonverbal discrepancies, as well as the sheer absence of supporting nonverbal cues in some instances, may be major determinants of communication problems arising when handicapped/nonhandicapped persons interact.

Previous research indicates that visible impairments per se tend to provoke anxious reactions from nonhandicapped interactants (Marinelli & Kelz, 1973; Marinelli, 1974). This anxiety may be manifest via the verbal (Dibner, 1956) or the nonverbal (Mehrabian, 1969) channel of communication. For example, the nonhandicapped individual may exhibit verbal nonfluencies, nervous fidgeting, anxious facial affects, restricted body movements, and so on.

Given the transactional nature of human communication, anxiety revealing cues and/or discrepant verbal/nonverbal messages emitted by either interactant may be perceived as betraying the source's ambivalent emotional state, negative social evaluations, or communicative uncertainty toward the counterpart. In turn, these perceptions are expected to affect the level of ambivalence, social evaluation and uncertainty experienced by the counterpart and, thus, to elicit a similar affect-revealing response. Ongoing transactions of this type may result in an escalation process that continues until a termination threshold has been reached by one or both interactants.

Theoretically, such an escalation process provides an explanation reasonably consistent with several previous findings (e.g., Kleck, Ono & Hastorf, 1966; Kleck, 1968, 1969; Worthington, 1974; Marinelli, 1974). Obviously this line of reasoning assumes, for example, that discrepant verbal/nonverbal behaviors are perceived and interpreted by both participants in the general manner described above. It further suggests that the exhibition of negative or ambiguous communicative behaviors is more probable, at an accelerated pace, in interactions with handicapped persons who are restricted in their ability to encode nonverbal cues.

As a result of atypically high uncertainty, it is also conceivable that handicapped/nonhandicapped interactants tend to monitor the nonverbal channel more intensely than

the verbal, in order to assess the emotional states of the counterpart. While there is general support for the dominant impact of nonverbal information particularly when discrepant messages occur simultaneously (e.g., Argyle, Alkema & Gilmour, 1971; Fujimoto, 1971; McMahan, 1976), nonverbal messages are not always pre-eminent. Situational factors, personality types, as well as the type and degree of message components apparently tend to complicate this issue (e.g., Fujimoto, 1971; Shapiro, 1968; VandeCreek & Watkins, 1972).

To date, little empirical research has attempted to determine which major channel exerts the greater impact on transactions of the present type. Knowledge of the verbal/nonverbal relationship and the extent to which these channels differ as salient sources of information would likely prove invaluable for development of effective communication strategies in the context of handicapped/nonhandicapped interactions. More specifically, the ensuing discussion anticipates development and use of such strategies to address the pressing problem of unequal employment opportunity for handicapped persons.

Two methodological impulses that guided the conduct of this research deserve comment. First, it should not be necessary to argue the general need for substantive, deductive theory in our discipline. Certainly not in this area. Social scientists are well aware that facts do not explain themselves. If observations are to be interpretable, sound

theoretic information is necessary (Heise, 1975). Moreover, there is an obvious need for testable theory which is sufficiently complex to provide informative insights that supercede those gleaned from common sense and practical experience. Hence, this paper represents an initial attempt to build theory defined as a set of interrelated "systematically organized, lawlike propositions" that can be supported or falsified via empirical evidence (Zetterberg, 1965:22).

Second, the attempt to build sufficiently complex yet testable, deductive theory poses a serious problem particularly in the context of a young science. To develop such theory, the builder must begin with relatively simple sets of relationships that serve as first approximations of deductive theory. Typically, the model includes only a few relevant variables (at best) and is far too simple to represent the complexities of the real world under study. Moreover, at this stage it is extremely difficult not to prioritize those variables and relationships that are more easily observed or tend to "fit" conveniently into the simple theory while eliminating relevant others that do not (Blalock, 1969). The theoretical statement to follow attempts a happy medium between the goals of complexity and testability. It is a first approximation of deductive theory that invites reformulation toward more realistic representations of the real world via inductive

research processes.

Given prior seminal ideas, the subsequent theoretic formulation addresses this general research question:

> In an initial employment interview, what effects do varying levels of verbal and nonverbal communication emitted simultaneously by handicapped interviewees, have on the nonhandicapped interviewer's (1) communicative uncertainty, (2) state anxiety level, (3) interpersonal attraction toward the interviewee, (4) perception of the interviewee's state anxiety level, and (5) perception of the interviewee's interpersonal attraction toward the interviewer?

While present interests focus on an employment interview context, the theoretic statement developed to address this question is sufficiently general to apply to any initial encounter between handicapped and nonhandicapped persons.

The Domain

This discourse presupposes an interdependent relationship between verbal and nonverbal components in ordinary human communication. It does not imply a subordinate role for either channel, nor deny that each can function effectively alone. Their ordinary interdependency does imply that selection of appropriate variables for comparison across the two channels will depend, in part, on a conceptual view of communication theoretically capable of consistent application in both verbal and nonverbal areas.

Communication per se, in distinction from other human behavior, minimally requires (1) a socially shared signal system, that is, a code; (2) an encoder actively making

some experience public via that code; and (3) a decoder able to respond systematically to the same code (Wiener, Devoe, Rubinow & Geller, 1972; Burgoon & Saine, 1978). While this definition provides a useful point of departure, it leaves several key questions unanswered particularly in the nonverbal area.

First, the sign versus symbol issue. For some scholars signs are distinguished as a natural extension of the events they herald. Thus, the occurrence of cumulus clouds is considered a sign of impending rain, or a flushed face may naturally signal an underlying emotional state. On the other hand, symbols have arbitrarily assigned, socially shared referent meanings. While verbal symbols such as "cumulus cloud" are clearly understood by English speakers, their association with the real event is neither natural nor necessary. Nonverbal symbols are believed to serve essentially the same communicative function. Although complex differences between verbal/nonverbal systems are becoming increasingly apparent, these distinctions are not relevant here.

Another approach allows the term sign to represent any attribute or human behavior from which an observer can infer some significance or glean any information about the source. Presumably, the term sign may then include such diverse and idiosyncratic behaviors as lint picking, head scratching or weight watching activity. The nonverbal

literature is replete with similar examples. Signs, in this latter sense, do not qualify as communicative events by present definition. While they may be informative in some broad sense, idiosyncratic behaviors and more general stimuli serving only as a basis for inference are excluded here. However, the pathological interest of this paper recommends inclusion of nonverbal signs as well as symbols which meet either of two criteria: (1) natural behaviors that reflect underlying emotional states, provided they are known to bear socially shared meanings and (2) learned behaviors that reflect the enculturation process and are known to bear socially shared referent meanings.

Second, intentionality in the nonverbal area is equally problematic. Who decides what is intentional and the required level of consciousness involved are closely related, complicating issues. Several prominent investigators (e.g., Ekman & Friesen, 1969; Wiener et al., 1972) insist on conscious intent by the message source as a prerequisite for communicative events. Others are willing to relax this stipulation to include messages that are perceived as intentional by either the receiver, an outside observer, or the source (Miller & Steinberg, 1975). Still others accept an even broader view involving messages that are either (1) subconsciously or unintentionally sent, if interpreted as intentional by any observer, or (2) subconsciously received by an observer, if consciously and intentionally sent (Burgoon & Saine, 1978).

This already complex issue is exacerbated in the context of interactions with handicapped persons who may be unable, due to physical impairment, to encode their intentions appropriately via the nonverbal steam. Previous research suggests the extraordinarily high information potential of affect-revealing cues when handicapped/non-handicapped persons interact. Nonverbal signs of this type, whether natural or learned, which may occur at a relatively low level of awareness are quite germane to present concerns.

The following discussion is a modest attempt to avoid some of the confusion present in extant nonverbal literature by establishing clear conceptual parameters for the class of events under study here and the terminology used to describe it.

Wiener, Devoe, Rubinow and Geller (1972) expose conceptual problems associated with the now prevalent decoding perspective and argue convincingly for greater emphasis on the encoding subject in current conceptualizations of nonverbal communication. In that regard, the authors offer a useful distinction between informative nonverbal behavior which may be emitted at a relatively low level of awareness and nonverbal communication which they define as a more distinctly intentional act by the message source.

Although use of the term behavior is eventually eliminated as a label for informative events here, the prior conceptual distinction proposed by Wiener et al. (1972)

suggested that theory construction involving both verbal and nonverbal communication might ideally begin at a higher level of abstraction, using a larger generic category that will allow consistent classification of informative events across the two channels. That class of events, to be defined momentarily, is labeled information transfer. The more familiar term, information exchange, would have been preferred. However, as the introductory comments warn, it is imperative to begin with simple models. The term exchange implies a dynamic, nonrecursive process with which the present formulation is not designed to deal. The genus labeled information transfer will require careful definition.

The concept, information, is drawn from general information theory. It is defined as any observation, perception or cognition that reduces uncertainty for the observer. A more thorough explication of this notion is provided later and will not be repeated here. Basically, uncertainty arises in a communication context when an interactant is confronted with several alternatives, either for encoding or decoding a message, and does not know which to choose. Information eliminates alternatives from the response field reducing the probability of error proportionately and, thus also, the level of uncertainty associated with the choice. For present purposes, information also necessarily involves a socially shared set of referent meanings. That is, uncertainty reducing behaviors based on rules or referent

meanings unique to a specific interacting dyad do not qualify as informative actions by this definition.

The term transfer refers to mediated or face-to-face transmission of signs or symbols, with some awareness, from a human source to a human receiver. Consistent with the recursive communication model (cf. Figure 1, below) under consideration here, transfer implies only a one-way flow of signs or symbols from source to receiver at a single point in time.

Information transfer, then, minimally requires a source manipulating signs or symbols with socially shared referent meanings in the presence of an interacting receiver. That is, information associated with the signs and symbols must be common to some specifiable set of individuals who systematically interpret them in a similar manner (Ekman & Friesen, 1969). Hence, the observation, perception or cognition of these signs and/or symbols must be informative, i.e., reduce the interacting receiver's uncertainty.

As suggested earlier, an informative act implies some decoded meaning. It does not mean that the act of the source in question was intended to convey any information at all, although it does in fact do so. The source must, however, be aware that he/she has performed the act. This raises a critical distinction between intentionality and awareness, most germane to the classification of informative acts soon to be proposed below.

Much of the ensuing discussion relies largely on the seminal work of Ekman and Friesen (1969) in their attempt to order the nebulous realm of nonverbal communication. In order to avoid a potentially unproductive entrenchment in problematic issues involving intentionality, the authors simply argue that a source can be aware of his/her nonverbal behavior whether or not he/she engages in the act with intent to communicate a specific message. In support of this contention, the following definitions are provided. Awareness or internal feedback refers to the person's knowledge that he/she is engaging in a particular nonverbal act at the moment it is done, or the ability to recall with ease what he/she has done (1969:53). Relevant examples are provided later. Intentionality implies deliberate use of a nonverbal act to communicate a specific message. This definition does not include behavior which is considered to be subconsciously intended. Intentional nonverbal acts must be within awareness and the source must purpose to send a message via his/her act (1969:53-54).

Obviously, prior definitions and distinctions do not solve all problems associated with levels of intentionality particularly with respect to operationalization in the nonverbal realm. Grey areas remain between those nonverbal acts which are clearly intentional and those which lie somewhere within the source's stream of awareness but fall short of a conscious effort to communicate. One example is the

flushed face. Neither has the line been definitively drawn between acts that occur within and those that occur without awareness. The writer does contend that these modest conceptual beginnings will enable a clear identification of many, though by no means all, informative nonverbal acts.

Thus far, our discussion has necessarily focused primarily on conceptual problems arising in the nonverbal area. The writer's intent from the outset was to provide a set of parameters sufficiently general to be applied with relative consistency to the verbal domain as well. Given prior criteria, it seems intuitively reasonable to subsume at least four types of informative events under the conceptual umbrella labeled information transfer: (1) verbal communication, (2) informative verbal acts, (3) nonverbal communication, and (4) informative nonverbal acts. These four categories will be defined primarily in terms of the previous intentionality/awareness distinction and the type of information conveyed in each case. Two additional types, verbal and nonverbal behavior, will be defined in general terms to clarify their exclusion via parameters established for the domain of events presently under description.

Verbal communication is defined as use of an elaborate code system or language by which an encoding source is actively and with deliberate intent attempting to make his/her experience known to some other person(s). Use of a code system means manipulation of written or spoken word-symbols

with arbitrarily assigned, socially shared meanings. It is assumed that these symbols are addressed to receivers who are privy to the code system and thus able systematically to interpret them.

Informative verbal acts refer to implicit characteristics exhibited by a source in the process of encoding a verbal message. They support and contribute to, but do not independently constitute, verbal communication by our definition. While these implicit dimensions of the encoded message are ordinarily produced without deliberate intent to inform, the source is usually aware of his/her actions at the moment of execution or is unable to recall them at a later point in time. Verbal immediacy (Wiener & Mehrabian, 1968) illustrates the type of implicit verbal characteristics to which this category refers, e.g., systematic use of the first person plural pronoun ("we" as opposed to "you and I"). Brief vocalizations expressing agreement or understanding (e.g., "uh-huh," "hmm") called vocal reinforcers (Mehrabian, 1971a) provide another example. Limited evidence to date suggests that verbal characteristics of this type are informative regarding attitudes or emotional states of the source (e.g., Mehrabian, 1971a; Mehrabian & Ksionzky, 1972).

Similar to its verbal counterpart, nonverbal communication involves deliberate use of an elaborate code that functions much the same as any ordinary language system. Accordingly, the more rigorous definition adopted here restricts nonverbal communication to highly stylized gestural

movements called emblems (Ekman & Friesen, 1969). Emblems are defined as "those nonverbal acts which have a direct verbal translation or dictionary definition, usually consisting of a word or two, or perhaps a phrase. This verbal definition or translation of the emblem is well known by all members of a group, class or culture" (1969:63). These gestures may serve to repeat, substitute for, or contradict some part of the accompanying verbal message.

Emblems are used in an intentional effort to communicate. The source knows when he/she is using an emblem, can repeat it if asked to do so, and will accept communicative responsibility for it. Many emblems are arbitrarily coded, e.g., the sign language used by the deaf. Others are iconically coded (visually resembling their meaning) as illustrated in signal systems used by officials during sports events. While emblems may be exhibited in any area of the body, they are expressed primarily via the hands and face in this culture. The projected thumb of a hitchhiker is a familiar example of the former.

Informative nonverbal acts have several characteristics in common with their verbal counterparts. They are intrinsically related to the concomitant verbal message, are emitted quite spontaneously and ordinarily occur within the source's awareness. Similarly, they support and contribute to, but do not independently constitute, nonverbal communication. This class of events includes use of three additional

gesture types described by Ekman and Friesen (1969): illustrators, affect displays and regulators. In common with all informative acts previously defined, these nonverbal signs have agreed-upon, decoded meanings that elicit similar interpretations from a specifiable set of observers.

Illustrators are defined as body movements which directly accompany and serve to illustrate what is being said verbally, for example, gestures which (1) time out, accent or emphasize a particular word or phrase; (2) sketch a path or direction of thought; (3) point to a present object; (4) depict a spatial relationship; or (5) draw a picture of the referent. Illustrators augment the verbal band "on a moment-to-moment basis; they are directly tied to content, inflection, loudness, etc." (1969:69).

Affect displays are movements which reveal the state of one's emotions. While some bodily motions such as trembling are considered affective, the site of these nonverbal acts is more particularly the face. Distinctive movements of facial muscles are generally associated with the primary affects believed to be universal: happiness, surprise, fear, sadness, anger, disgust and interest (e.g., Tomkins, 1962, 1963; Tomkins & McCarter, 1964; Ekman & Friesen, 1967; Frijda & Philipszoon, 1963; Izard, 1968). These affective states are quite easily distinguished by observers in this culture; hence, it is assumed that they bear socially shared, decoded meanings. Affect displays may accompany use of the

verbal channel or they may meaningfully occur alone. The former usage is of central concern here.

Regulators are nonverbal acts used to maintain or regulate the back-and-forth flow of speaking/listening behavior between two or more interactants. They indicate that the speaker should continue, repeat, elaborate, increase speech rate, give up the floor, and so on. Regulators may also signal the listener to give special attention, wait or assume the encoding role.

The most common regulator is the head nod; others include eye contact, slight movements forward, small postural shifts, and eyebrow raising. Regulators carry no message content independent of the verbal conversation. Rather, they convey control messages necessary for pacing the exchange of information via the verbal band (Ekman & Friesen, 1969).

Thus far, we have defined illustrators, affect displays and regulators in terms of their primary functions for the purpose of setting some parameters on the class of events termed informative nonverbal acts. These subcategories can, and likely do, overlap in actual conversation. Affect displays, for example, can also serve as regulators. As Mahl (1968) has suggested, the fact that a particular nonverbal act may exert some influence on the verbal flow, does not mean that regulation is its sole or even primary purpose. Hence, the term regulator is reserved here for those

behaviors that do not conceptually fit into other categories such as illustrators or affect displays. The latter categories were also defined in terms of their major functions. In short, regulators appear only to regulate and tend to occur at a relatively low level of awareness.

In sum, preceding discussion describes the domain of events with which subsequent theoretic statements are concerned. Four types of action were subsumed under the rubric of information transfer: verbal communication, informative verbal acts, nonverbal communication and informative nonverbal acts. This choice of nomenclature deliberately reserves the term behavior for reference to verbal/nonverbal actions that are uninformative by prior definition.

Verbal behavior, as opposed to communicative/informative verbal acts, will refer to unintentional linguistic innovations (Sturtevant, 1947), i.e., articulatory or performance errors that do not contribute to, and may actually inhibit, information exchange. Boomer and Laver provide a useful definition in this regard: "A slip of the tongue ... is an involuntary deviation in performance from the speaker's current phonological, grammatical or lexical intention" (1968:4). Behaviors of this type include, for example, nonfluencies such as meaningless combinations of phonemes or morphemes that occur during a lapse in the encoding process, whole words out of semantic context, repetition of syllables, spoonerisms, omissions and mispronunciations. While these

behaviors may occur within the encoder's awareness, they fail to meet the criterion of agreed-upon, decoded meaning.

Similarly nonverbal behavior, as opposed to communicative/informative nonverbal acts, will refer to what appear (on present knowledge) to be more random, idiosyncratic movements which specific individuals develop over time. The conceptualization of adaptors provided by Ekman and Friesen serves well as a general description of the type of nonverbal activity intended here. Adaptors are believed to be movements learned in childhood as part of adaptive efforts to satisfy bodily needs, manage emotions, learn instrumental activities or develop and maintain prototypic interpersonal contacts. While adaptors represent behaviors first learned "as part of a total adaptive pattern where the goal of the activity was obvious, when these actions are emitted by the adult particularly during social conversation, only a fragment of the original adaptive behavior is seen. These fragments or reductions of previously learned adaptive acts are maintained by habit ... By this reasoning, adaptors when emitted by the adult are habitual, not intended to transmit a message, and usually without awareness" (1969:84-85).

Examples of this behavioral type are hand-to-face (or head) movements such as grooming the hair with one's hands in public, wiping the lips with the tongue or hands, picking or scratching the scalp, and wiping the brow or nose with the back of the hand. Restless movements such as bouncing

the lower leg and foot in a seated position also exemplify this category. While these movements can on occasion provide a basis for attitudinal inferences, Ekman and Friesen argue that their interpretation "is difficult, often speculative and uncertain" (1969:87).

Behavioral Determinants of Social Interaction

This section reviews basic research in pursuit of heuristically promising independent variables. Social intercourse in general has been the subject of considerable study. Investigation of this area has had at least two emphases: (1) description and measurement of specific behaviors that determine social interaction, and (2) examination of effects situational and individual differences may have on these behaviors (Mehrabian & Ksionzky, 1972). This essay relies on findings in the former area to develop theory of the latter type.

Prior research repeatedly demonstrates that two or three basic factors can be used to describe and measure social interaction. Several studies using Bales' (1950) Interaction Process Analysis (e.g., Carter, 1954; Couch, 1960; Bales, 1950, 1968) consistently produced three underlying dimensions identified as affection (Positive/negative evaluation), power, and contribution to group tasks.

Others have obtained two major factors (e.g., Borgatta, 1962): sociability, similar to affection, and assertiveness relating to power.

Mehrabian and Ksionzky (1972) used twenty-six reliably scored verbal/nonverbal cues with previously demonstrated social significance (cf. Mehrabian, 1972a) to measure behaviors of participants in live interaction. Factor analysis of their observations yielded a six-factor solution: (1) affiliative behavior, related to the affection factor above; (2) responsiveness, an index of activity or reaction to the counterpart; (3) relaxation, believed to imply dominance and thus related to the power factor identified earlier; (4) ingratiation; (5) distress or active avoidance; and (6) intimate position, an index of physical proximity. The authors note that the first three factors are of major import in characterizing social interaction.

The foregoing research confirmed original factor analytic work by Williams and Sundene (1965) and Osgood (1966) which identified essentially the same three factors as major referents of nonverbal communication. Similar analyses (Osgood, Suci & Tannenbaum, 1957; Snider & Osgood, 1969) on verbal cues using semantic differential scales likewise obtained factors labeled evaluation (liking or preference), dominance (power) and activity (responsiveness). Mehrabian (1972b) has used these three referent meanings to characterize nonverbal communication and demonstrated their

relevance across a wide range of social situations.

An early review (Foa, 1961) of factor-analytic studies in this area indicated that two factors consistently emerge, love-hostility and dominance-submission. In a therapeutic context, Lorr and Suziedelis (1969) factor analyzed ratings of social behavior across patient/normal groups; the resulting structure included essentially the same two factors, sociability (or affiliation) and control (or power). Cross-cultural factor-analytic studies on (1) group behavior of children (Longabaugh, 1966) and (2) role perceptions, behavioral intentions and perceptions of social behavior (Triandis, Vassiliou & Nassiakou, 1968) have produced comparable results.

Summarily, research attempting to characterize social interaction via factor-analytic techniques indicates that three factors are consistently identified: affiliation, potency (or status) and responsiveness. The first factor, typically identified as affiliation (sociability, love-hostility, or affection), appears more tentatively to be the dominant dimension across a variety of social settings.

Effects of situational and personality correlates on the characteristic dimensions of social interaction reported in factor analytic research have been examined less extensively. Two experiments in this area (Mehrabian, 1971a; Mehrabian & Ksionzky, 1972) have had considerable influence on the present work. These studies, based on a

model of affiliative behavior by the same authors (1970), were primarily designed to explore effects of social reinforcement and individual differences on nonverbal and implicit verbal behaviors exhibited by pairs of strangers interacting in a waiting situation. Their proposed model hypothesized that affiliation increases as a function of positive (and decreases as a function of negative) reinforcement by an interacting counterpart. The main experimental factors introduced in both studies were: (1) degree of positive reinforcement and (2) degree of negative reinforcement received prior to or during interaction. The second, more comprehensive study introduced four levels of reinforcement (positive, negative, mixed and neutral) and included anticipated cooperation versus competition with the target person as an additional independent variable. Five individual difference variables: affiliative tendency, sensitivity to rejection, achieving tendency, sex and birth order were measured by questionnaire.

Dependent measures, taken on each subject during spontaneous interactions with an experimental confederate, were twenty-six nonverbal/implicit verbal behaviors drawn from prior factor-analytic research. Scoring criteria for each dependent measure are reported in Mehrabian (1972b, Appendix A). The observations were factor analyzed and a principal component solution yielded the following six factors: affiliative behavior, responsiveness, relaxation,

ingratiation, distress and intimacy. Table 1 reports specific behaviors subsumed under the first factor which is most relevant here. Variables are listed in order according to the magnitude of their loadings (highest to lowest). Direction of the loading for each variable is also indicated in parentheses.

Additional analyses related each of the six factors (via composite indices for each subject) as dependent measures to the eight independent variables listed above. Significant main effects were found, as expected, for affiliative behavior as a function of affiliative tendency and anticipated cooperation. The direction was positive in both cases. Several significant interaction effects, particularly when positive/negative reinforcements were included, provide refinements on these single-variable relationships.

First, subjects who scored high on the affiliative tendency measure exhibited more affiliation only when they did not receive negative reinforcement from the confederate prior to interaction, regardless of whether or not positive evaluations were also involved (i.e., via mixed reinforcements). Second, a significant third-order interaction effect was found in one of the four evaluation conditions.

TABLE 1

Nonverbal and Implicit Verbal Behaviors Defining Affiliation, a Primary Dimension of Social Interaction (Mehrabian & Ksionzky, 1972: 591)

FACTOR I: Affiliative Behavior	
Total number of statements per minute	(+)
Number of declarative statements per minute	(+)
Percent duration of eye contact with confederate	(+)
Percent duration of subject's speech	(+)
Percent duration of confederate's speech*	(+)
Positive verbal content	(+)
Head nods per minute	(+)
Hand and arm gestures per minute	(+)
Pleasantness of facial expressions	(+)

*The only item that did not pertain to subject's behavior.

Subjects who received mixed evaluations (i.e., high positive and high negative reinforcements) affiliated significantly less when anticipating competition rather than cooperation.

In sum, these findings were largely consistent with the authors' original model of affiliative behavior. They also support the primacy of affiliation as a basic dimension of social interaction and suggest the following conclusions. First, the Mehrabian and Ksionzky (1970) model provides a useful framework for investigating the special type of interaction at hand. Second, results of the latter study above are intuitively consistent with early research on communication with handicapped persons (e.g., Kleck, Ono & Hastorf, 1966; Kleck, 1969; Worthington, 1974) and encourage an initial approach to this area focusing primarily on affiliation as a promising source of further insight. Third, the interaction effects reviewed above clearly indicate that mixed or discrepant evaluative cues (emitted by a counterpart via only a single channel) tend to reduce affiliative effort even in relatively "normal" social situations, most notably among persons with strong tendencies to affiliate. It is reasonable then to expect that this negative effect will increase if discrepancies in affiliative communication occur across the two major channels when handicapped/nonhandicapped persons interact.

Theoretic Moorings

If the interpretation of empirical data depends on theory (Heise, 1975), it is also the case that sound theory must be grounded in empirical data (Glaser & Strauss, 1967). Typically, the researcher attempts to formulate the best theoretic statement possible in light of existing evidence (Blalock, 1969). It seems reasonable then to approach the problem of handicapped/nonhandicapped communication from the vantage of current theoretic developments and prior research on interpersonal relationships in general. Results of previous handicap research reviewed earlier (e.g., Kleck, 1966; Marinelli & Kelz, 1973; Marinelli, 1974) suggest that atypically high levels of uncertainty are present when nonhandicapped persons initially interact with handicappers. Hence, the general uncertainty reduction paradigm outlined below was adopted as the most promising theoretic point of departure.

Human beings have a strong innate need to make sense out of their environment (Heider, 1958). We strive for certainty and have, perhaps, more tolerance for ignorance than ambiguity. The theoretic perspective to follow rests on the assumption that when unfamiliar persons initially interact, they are primarily concerned to reduce their own uncertainty in order to predict, explain and ultimately

control the effects of their respective communication behaviors (Jones, Kanouse, Kelley, Nisbett, Valins & Weiner, 1972; Kelley, 1973; Berger & Calabrese, 1975).

Prior to choosing a course of action, interacting persons attempt to predict the most likely alternative among possible responses their counterpart might make (Miller & Steinberg, 1975). This predictive process is conceptually analogous to the strategy-planning forethought of a chess player who anticipates the counterpart's response alternatives before each move. In fact, probable outcomes for several reciprocal moves will likely be predicted in advance. Such predictions are assumed to be more or less certain depending on the amount of relevant information available to the predictor.

Information is defined as any observation, perception or cognition that reduces uncertainty. Generally, uncertainty arises when one is confronted with several alternatives and does not know which to choose. The level of uncertainty in a given situation is defined by the probability of error inherent in the number of plausible and desirable options from which one must choose. In theory, information eliminates alternatives from the response field, reducing the probability of error proportionately. Consequently, the level of uncertainty associated with the choice is also reduced. In short, to the extent that one's choice is informed, the number of plausible options is

decreased and prediction is made with greater certainty. Information, so defined, is the complement of uncertainty (Krippendorff, 1975) and the stock-in-trade of uncertainty reduction.

Following recent attribution theory, Berger and Calabrese (1975) provide a useful distinction between two types of uncertainty. First, the proactive type is associated with prediction as described above; it occurs prior to the actual behavior in question. Proactive uncertainty is a function of the amount of information available to participants during interaction enabling them (1) to predict the most likely response their counterpart may make, and (2) to choose an appropriate strategy from their own repertoire so as to maximize likelihood of a desired response (Miller & Steinberg, 1975).

Second, retroactive uncertainty is associated with the problem of explaining or interpreting a particular behavior after its occurrence. Several theorists (e.g., Jones et al., 1972; Kelley, 1973) hold that in addition to predicting responsive actions, human interactants are equally concerned to explain or validate social behavior, their own as well as that of others. There are, typically, a number of plausible attributions that can be made from a particular social act. In this regard, Schachter and Burdick (1955) demonstrated that recipients of ambiguous messages tend to engage in intensive social contact for the purpose

of reducing uncertainty of this type.

Similarly, humans are often as uncertain about events within themselves as they are about events in their environment. Considerable research on the link between the need for self-evaluation and affiliative behavior has shown that human beings desire to identify or confirm their own reactions to specific situations (e.g., Fromm-Reichman, 1959; Schachter, 1959). This research is supportive of Festinger's (1954) social comparison theory suggesting that persons seek out similar others with whom to confer when they experience high levels of uncertainty regarding the appropriateness of their own behavior and/or their perceptions of a particular situation.

More specifically, retroactive uncertainty is a function of the amount of information available to participants during interaction enabling them (1) to select the most likely explanation for a counterpart's behavior, and (2) to identify or confirm their own reactions to that behavior. In addition, information exchange (or transfer, in this context) is regarded as the primary means interacting persons use to minimize the number of alternatives from which they must choose for both predictive and explanatory purposes.

According to Blalock (1969), a deductive theory contains both axioms and theorems. Axioms are those propositions assumed to be true while theorems are logically

derived or deduced from the axioms. Moreover, axioms should be causal assertions that are, strictly speaking, "untestable because of the fact that it will never be possible to control for all 'relevant' variables" (1969:11). This is tantamount to saying that axioms should be causal, "lawlike" probability statements for which there is substantial evidence.

By these criteria, the axioms to be proposed momentarily do not qualify this formulation for deductive theory status. It is my judgment that the following propositions should be considered associational, rather than lawlike causal statements, in lieu of additional support. They were formalized in light of the preceding rationale and additional evidence to be cited. Each axiom pertains to initial interaction between strangers and thus assumes a high level of uncertainty at the outset (Lalljee & Cook, 1973).

> Axiom 1: As level of information transfer generated by either interactant increases, level of communicative uncertainty experienced by the counterpart will decrease. Conversely, increasing levels of communicative uncertainty experienced by the counterpart will accompany decreasing levels of information transfer generated by either interactant.

Axiom 1 relates the two primitive terms with which our formal theory begins. It is logically true in terms of prior complementary definitions provided for information transfer and uncertainty. This proposition might simply have been stated as the pivotal a priori assumption

underlying the entire theory. It was formalized here in the interest of clarity. Subject to future refinements, Axiom 1 may also prove useful beyond present definitional constraints.

In addition, Axiom 1 expresses a theoretical relationship between highly abstract concepts. Even before these concepts are operationalized via specific observables, a second important inferential leap is logically required. In the interest of experimental control (i.e., testability), information transfer must be reduced to a lower level of abstraction. The necessary reduction can be accomplished by assuming that the amount of information transferred in a given interaction is approximately coterminus with the number of communicative/informative acts (as defined above) transmitted from source to receiver. This assumption is formalized in the next two propositions.

> Axiom 2: As number of communicative/informative verbal acts emitted by either interactant increases, level of information transfer will increase. Conversely, decreases in level of information transfer will accompany decreases in number of communicative/informative verbal acts emitted by either interactant.

Axiom 2 is a crucial step in the logical process at hand for at least two reasons. First, the informative value of any given verbal act will likely vary in actual performance depending on the context, information levels held prior to interaction, individual differences reflected in the encoding process, and so on. Second, it is highly

unlikely that discrete verbal acts (even of the same type), to be quantified as a means of measuring information transfer, will be equally informative. For example, several declarative sentences expressed by a given source may have less informative value than the smaller number expressed by a counterpart. Nor can it be taken for granted that discrete verbal acts regularly function in a linear, additive fashion, i.e., without interactive effects.

Hence, the number of discrete verbal acts produced by interactants is assumed to be a gross index of the actual amount of information transferred in a given context. The preceding proposition makes this assumption explicit. The following rationale is offered in support of Axiom 2.

Lalljee and Cook (1973), in a study allowing two-way communication, found that as interactions between strangers progressed, the number of words spoken per minute increased significantly over a nine minute period. The present formulation suggests that as the number of informative verbal acts exchanged in this study increased, the amount of information available to each person also increased, resulting in uncertainty reduction for both persons. In turn, reduced uncertainty encouraged the production of verbal acts by each participant at an accelerating rate.

Conversely, Berger and Larimer (1974) found that when feedback was not allowed in a similar context, the number of words spoken per minute decreased significantly over a

four minute period. Our theory suggests that restricting feedback in this instance interrupted the flow of information by introducing a significant decrease in the number of informative verbal acts emitted by at least one person at a given point or over time. Intuitively, the absence of an appropriate verbal response can be expected to impede exchange of information by increasing retroactive uncertainty dramatically. That is, little or no feedback would seem to be the least informative, and may be the most ambiguous, of plausible response alternatives when an uncertain interactant initially solicits or discloses information.

Indeed, the absence of verbal feedback can be expected to increase the number of possible interpretations open to the receiver and to render the next response virtually unpredictable. If interacting strangers are primarily concerned to reduce uncertainty, then initial attempts to communicate that result in greater uncertainty might appear (to the source) as unrewarding, or even to elicit punishment. Moreover, if absence of feedback is perceived as negative reinforcement or punishment (via increased uncertainty, we would expect a reduction in the subsequent number of verbal acts generated by the unrequited source. Hence, the decrease in number of words per minute observed by Berger and Larimer. On the prior line of reasoning, it is assumed that level of information transfer and number of informative verbal acts will covary in the same direction (Axiom 2).

By extension of the preceding rationale, a similar positive association is posited between information transfer and informative nonverbal acts.

> Axiom 3: As number of communicative/informative nonverbal acts emitted by either interactant increases, level of information transfer will increase. Conversely, decreases in level of information transfer will accompany decreases in number of communicative/informative nonverbal acts emitted by either interactant.

Introductory comments alluded to the common assumption that certain nonverbal cues are closely associated with, and auxiliary to, linguistic behavior (e.g., Harrison, 1974; Ekman & Friesen, 1969). Under normal circumstances, these nonverbal counterparts of language function to repeat, substitute for, complement, accentuate, contradict or regulate verbal communication (Burgoon & Saine, 1978). Although the processes involved may differ considerably, the present claim is that verbal and nonverbal actions (within the domain defined above) serve essentially the same general purpose, exchange of information. Hence, the parallel relations posited in preceding propositions.

The rationale offered in support of Axioms 2 and 3 attempts to provide some theoretic justification for reducing the concept, information transfer, to an experimentally manageable level of abstraction. This move has considerable bearing on available options from which relevant, observable variables can subsequently be selected. However, the domain of eligible communicative/informative

events that might be used to index information transfer (across the two major channels) is still extremely large. Thus, an important question rises at this juncture. Given our theoretic concern with uncertainty reduction, what type of information is most relevant, i.e., most likely transferred, during initial interactions? The following pair of propositions and supporting rationale address this issue. Both axioms express reciprocal relationships.

> Axiom 4: As level of verbal affiliation increases, level of information transfer will increase. As level of information transfer increases, level of verbal affiliation will further increase. Decreases in level of information transfer will accompany decreases in level of verbal affiliation.
>
> Axiom 5: As level of nonverbal affiliation increases, level of information transfer will increase. As level of information transfer increases, level of nonverbal affiliation will further increase. Decreases in level of information transfer will accompany decreases in level of nonverbal affiliation.

Axioms 4 and 5 are based on the following summary of previous discussion.

Prior factor-analytic research on behavioral determinants of social interaction indicated that three factors consistently emerge. The first factor, typically identified as affiliation (sociability, love-hostility or affection), appears to be the dominant referent dimension of social interaction across a variety of settings (Mehrabian, 1971a). Two such studies in particular (Mehrabian, 1971a; Mehrabian & Ksionzky, 1972), exploring relationships among nonverbal/

implicit verbal behaviors of strangers in a waiting situation, suggest several associations of theoretic interest here. The model under study hypothesized that affiliation is encouraged by positive verbal and nonverbal reinforcement while it is discouraged by negative reinforcement of both types. Significant positive correlations were found in both studies between indicators of the amount of verbal communication and several measures of positive reinforcement. Both sets of indicators showed strong positive loadings on the first factor labeled affiliative behavior./

Affiliation is a useful construct in this context for two reasons. First, it is akin to the concept of "approach-avoidance" as discussed by Mehrabian (1971b) and thus suggests the tendency for individuals to decrease their physical distance in order to interact. In terms of the present formulation, affiliation is then a logical precondition for increased interaction and uncertainty reduction via information transfer. Second, affiliation is generally identified with positive reinforcement which serves to encourage both physical and social proximity during interaction. Thus, affiliation may be considered a fundamental (positive), source-oriented stimulus which is expected to foster the exchange of similar (as well as other) types of information.

Factor-analytic studies cited above indicate that positive reinforcement is exchanged via nonverbal as well as verbal cues. Approximately half of the variables loading

on the affiliative factor in both studies (Mehrabian, 1971a; Mehrabian & Ksionzky, 1972) were nonverbal measures. The latter study in particular provides evidence recommending two constructs of theoretic interest for purposes of examining verbal/nonverbal relationships in the context of handicapped/nonhandicapped communication. Division of the affiliative factor (cf. Table 1) into its verbal and nonverbal components yields a composite set of positive indicators for both verbal and nonverbal reinforcement. For reference purposes here, the composite set of verbal measures is labeled <u>verbal affiliation</u>; their nonverbal counterparts, <u>nonverbal affiliation</u>.

Theoretically, both constructs represent the prerequisite type of reinforcement by which social interaction is initiated and continues to develop. Defined in terms of specific behaviors identified by Mehrabian and Ksionzky (1972), affiliation is the logical first-step in our uncertainty reduction model presented in Figure 1. Based on prior discussion, both verbal and nonverbal affiliation are expected to occupy a direct, positive and reciprocal relationship with the broader class of events defined previously as information transfer. These relations were formalized in Axioms 4 and 5.

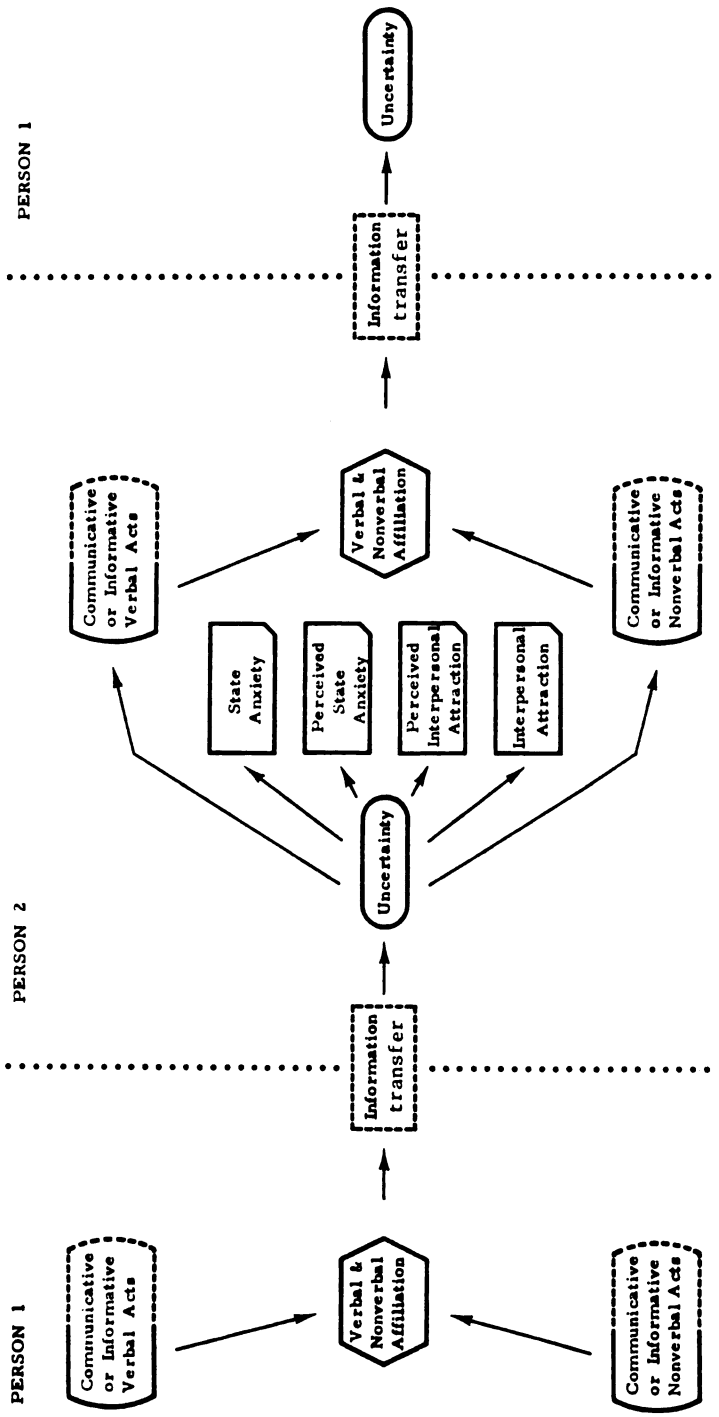

Figure 1. Flow Chart Illustrating a Logical Model of the Theory Proposed to Represent Initial Interactions Between Handicapped/Nonhandicapped Persons From an Uncertainty Reduction Perspective.

Observed correlations among empirical indicators of verbal and nonverbal affiliation (Mehrabian, 1971a) suggest a strong association between these variables. Fifteen of sixteen relevant intercorrelations were significant (α = .01) in a positive direction; the single exception approached significance at this level in the same direction. These data, collected exclusively from observation of target subjects, imply that interacting strangers ordinarily encode their affiliative messages with a high degree of consistency across the two channels. On this account, levels of verbal and nonverbal affiliation emitted simultaneously by a single source are expected to covary in the same direction.

> Axiom 6: As level of verbal affiliation increases, level of nonverbal affiliation from the same source will increase. Decreases in level of nonverbal affiliation will accompany decreases in level of verbal affiliation from the same source.

A major concern of this paper is the potentially serious problem the previous discussion implies for handicapped persons with normal verbal skills who may be unable to encode appropriate nonverbal cues in a manner consistent with Axiom 6. As noted earlier, physically impaired persons may frequently exhibit nonverbal signals that are perceived to be incongruous with their verbal communication. Axiom 6 provides a theoretic basis for the following conceptual distinction between congruent and incongruent verbal/nonverbal messages. Incongruent messages are

defined as those in which the level of a specific type of information conveyed via the verbal channel is perceived to be significantly different than the accompanying level of the same type of information conveyed via the nonverbal channel by the same source. Conversely, congruent messages are those in which levels of a given type of information emitted simultaneously across the two channels (by a single source) are not perceived to be significantly different.

In this connection, it is postulated that when incongruency occurs between simultaneous verbal/nonverbal cues emitted by the same source, the nonverbal portion will dominate in determination of the total message impact. Direct empirical support for this prediction was found in two experimental studies (Mehrabian & Ferris, 1967; Mehrabian & Wiener, 1967). Their findings indicate that the combined effect of verbal, vocal and facial cues which convey liking attitudes is a weighted sum of their independent effects as represented in the following equation (Mehrabian, 1971b):

$$\text{Total liking} = 7\% \text{ verbal liking} + 38\% \text{ vocal liking} + 55\% \text{ facial liking}$$

More recently, two studies confirmed the former finding (Argyle, Salter, Nicholson, Williams, & Burgess, 1970; Argyle, Alkema & Gilmour, 1971). Subsequent research suggests that attitudes conveyed through various channels may interact to determine the total message impact (Bugental,

Kaswan, Love & Fox, 1970; Lampel & Anderson, 1968). Hence, while the equation above represents only a first-order approximation (Mehrabian, 1972b), it does provide general support for the dominant effect of the nonverbal band. With regard to affiliative cues in this case, when incongruency occurs across the two channels, the nonverbal component is expected to exert a greater influence on the sum total of information conveyed. This expectation is formally stated in the following proposition.

> Axiom 7: Given incongruent levels of verbal/nonverbal affiliation emitted simultaneously by a single source, level of nonverbal affiliation will exercise the dominant influence on level of information transfer.

Since affiliation is only one of three basic determinants of social interaction consistently identified in prior research, it seems reasonable to assume that other factors involving different types of information (e.g., potency) will also influence uncertainty reduction and contribute to the receiver's ultimate perception of how he/she is being evaluated. Hence, the present model (see Figure 1) suggests that level of information transfer will mediate the effects of verbal/nonverbal affiliation on communicative uncertainty. The latter construct, communicative uncertainty, is logically associated in this model with attitudes inferred by, and other responses of, the receiver as reasoned below.

In support of Axiom 6, it was argued that interacting strangers ordinarily encode their affiliative messages with a high degree of consistency across the two major channels. If this is the case, it is reasonable to expect that less congruent messages will introduce greater ambiguity into the decoding process than more congruent levels of the same verbal/nonverbal cues (Mehrabian & Reed, 1968). That is, incongruent messages are expected to be more difficult to decode since they tend to increase the number of plausible, alternative interpretations from which a receiver must choose. Assuming that some degree of cancellation occurs when conflicting bits of information emanate from the two channels, the combined informative impact of incongruent verbal/nonverbal messages is expected to be lower and, consequently, to have less uncertainty reducing effect than congruent messages. They may, in fact, increase the receiver's uncertainty depending on the degree of discrepancy between the two channels. While some degree of ambiguity may be characteristic of all human communication, as discrepancy across the two channels increases, recipients of incongruent messages are expected both to experience less uncertainty reduction and to attribute greater uncertainty to the source. More specifically, perceived verbal/nonverbal incongruency in single source messages should be inversely related to information transfer (and, in turn, to the level of certainty experienced by the receiver).

Hence, the following formal proposition is advanced.

> Axiom 8: As level of verbal/nonverbal incongruency in single source messages increases, level of information transfer will decrease. Increases in level of information transfer will accompany decreases in level of verbal/nonverbal incongruency perceived in single source messages.

Several theorists have advanced the notion that "response matching" behavior (Argyle, 1969; Brooks & Emmert, 1976) or a reciprocity norm functions to control exchange of information in interpersonal transactions (Gouldner, 1960; Jourard, 1960; Berkowitz, 1968; Berger & Calabrese, 1975). According to Argyle, "During social interaction it is very common for an act by A to be followed by a similar act from B. This we call response matching ..." (1969:171). Numerous studies between 1950 and 1969 have verified this phenomenon with regard to length of utterances (Matarazzo, Wiens & Saslow, 1965; Argyle & Kendon, 1967); interruptions and silences (Argyle & Kendon, 1967); type of utterance (Bales, 1950); gesture and posture (Rosenfeld, 1967); and self-disclosure (e.g., Jourard, 1960). It is also likely that response matching occurs with regard to emotional states, i.e., an "emotional contagion" takes place (Argyle, 1969; Brooks & Emmert, 1976). The latter area may be particularly important in the context of communication with handicapped persons where high stress has been observed repeatedly.

It should be noted that the term response matching as used in this context implies only that increases or decreases in a particular behavior by a given source tend to be reciprocated via changes in the same type of behavior moving in the same direction by the respondent. Response matching does not imply that the reciprocal changes are quantitatively equal or symmetrical (cf. Matarazzo, Wiens & Saslow, 1965).

It has been argued that the reciprocity or response matching construct is of limited theoretic value since theorists have been unable to adequately explain the phenomenon (Altman & Taylor, 1973). In response to this claim, Berger and Calabrese (1975) advance a general rationale for reciprocity based on Goffman's (1959) notion that people prefer smooth running rather than stressful interactions. Utilizing an uncertainty reduction paradigm similar to the present formulation, these authors contend that the "easiest way to reduce mutual uncertainty would be to ask for and give the same kinds of information at the same rate of exchange. In this way, no one interactant in the system would be able to gain information power over the other" (1975:105).

While the former explanation moves in a heuristically promising direction, the writer finds it inadequate for two reasons. First, to assert a human preference for less stressful interactions and to assume that reciprocity is

the "easiest way" to reduce uncertainty does not advance our understanding of the phenomenon much more than the assertion of a reciprocity norm ipso facto explains its presence. Second, the explanation as stated would seem not to account for response matching behavior that involves stress itself. For example, in situations such as those under analysis here, stressful interactions frequently do occur and anxious reactions per se appear to be reciprocated. The notion of "information power" is, in the writer's view, a more promising idea for development of useful theory to explain reciprocity within the uncertainty reduction perspective.

If it is assumed, as several influential theorists argue (e.g., Homans, 1961; Thibaut & Kelley, 1959; Miller & Steinberg, 1975), that the basic function of communication is to control one's environment so as to realize certain rewards, information which enables a communicator to predict the effect of his/her own behavior with greater certainty becomes a powerful means of such control. Possession of information, required by either interactant to reduce uncertainty, represents potential power to direct the interaction toward one's own desired end. Given the transactional nature of human communication (Miller & Steinberg, 1975), exchange of information can be conceptualized as a kind of bartering process in which the interactants attempt to relinquish as little information as

possible in quest of maximum returns.

On this account, unfamiliar persons are expected to exercise considerable caution in their release of and requests for relevant information. In effect, they may initially engage in a mutual testing exercise to determine "supply and demand" characteristics of the situation. That is, during early stages of the encounter, interactants may be willing to risk only minimal amounts of relatively superficial information while attempting to reduce their own uncertainty regarding the counterpart's willingness to reciprocate in kind. Indeed, several studies have shown that the amount of demographic (low intimacy) information requested and disclosed is highest during the earliest stages of interaction. Significant decreases in the amount of demographic information exchanged occur rapidly after the first minute of interaction (e.g., Berger, 1973; Cozby, 1972; Sermat & Smyth, 1973; Taylor, Altman & Wheeler, 1973). At the same time requests for, and disclosures of, more intimate information (e.g., personal attitudes and opinions) were observed to increase significantly.

Altman and Taylor (1973) contend that intimacy level of communication content tends to increase over time as the relationship becomes more rewarding and less costly. The Miller/Steinberg (1975) distinction between psychological and sociological information suggests an explanation more consistent with the present formulation. They argue that

predictive (or proactive) uncertainty is reduced more efficiently by psychological level data, i.e., predictive error can be greatly reduced by basing one's forecast on information that distinguishes the counterpart as a unique person. Given the basic control function of communication and assuming that control depends on predictive accuracy, interacting strangers should prefer to reduce their uncertainty as rapidly and efficiently as possible. Hence, each will be inclined to pursue the more idiosyncratic information his/her counterpart may be willing to disclose. At the same time, while personal information represents increased potential for control and is therefore in greater demand, it also involves greater risk to the discloser.

On the prior rationale, response matching is even more likely to occur and/or continue as the interaction moves toward psychological level data, i.e., as more intimate information is exchanged. Thus, the early "demographic stage" may serve to initiate the preliminary prediction-making process via exchange of low risk information; it may also function to establish the response matching rule by which exchange of more personal information will be regulated. Indeed, several investigators have observed the response matching phenomenon at high levels of self-disclosure (e.g., Jourard, 1960; Cozby, 1972; Sermat & Smyth, 1973).

The present formulation posits an inverse relationship between a source's level of uncertainty and his/her self-disclosure. As uncertainty is initially reduced, particularly with regard to the counterpart's willingness to respond in kind (which greatly facilitates predictive accuracy), more intimate self-disclosure is expected to increase. As intimacy increases, response matching is expected to become the more definitive due to potentially negative consequences which accrue with intimate self-disclosure, e.g., risk of rejection, abuse, or loss of control in the interaction. Indeed, as intimacy level increases, response matching may also increase within certain parameters appropriate for a given stage of relational development. That is, a high intimacy threshold can be reached so as to violate social norms for initial encounters and/or place the receiver under an unacceptable obligation to respond in kind. At this extreme, response matching may begin to decrease as suggested by Miller and Steinberg (1975) and observed by Cozby (1972). Ordinarily, interacting strangers are not expected to violate such intimacy norms.

This account attempts to explain response matching, as observed in prior research, at various levels of information exchange. It diverges considerably from the Berger and Calabrese (1975) formulation which postulates that high levels of uncertainty produce high rates of reciprocity while low levels of uncertainty produce low rates of

reciprocity. The authors do not clearly define reciprocity rate. However, their view does not appear to take account of the increased potential for uncertainty reduction, predictive accuracy and control involved in the exchange of more salient, idiosyncratic information. Neither does it explain the response matching phenomenon observed repeatedly when highly intimate information is being exchanged. The contention here is that response matching continues to influence the type and flow of information well beyond initial interactions and is particularly critical when high risk information is being disclosed. On present evidence, it is quite conceivable that the decline in reciprocity rate associated with decreasing uncertainty by Berger and Calabrese does not occur until well-established interpersonal relationships have developed over time.

Three specific associations reflecting prior research on response matching can be meaningfully integrated with the theoretic framework proposed thus far. First, in a series of experimental studies by Matarazzo, Wiens and Saslow (1965) significant increases in length of interviewee speech duration were observed to follow increases in length of utterances by the interviewer. The associated increases were not quantitatively symmetrical. Observed ratios of interviewee to interviewer speech duration were, however, remarkably constant at five or six to one across several

studies.

Admittedly, length of utterance alone is not likely a very reliable index of informative value as, for example, in the case of a congressional filibuster. It is intuitively reasonable to assume for theoretic purposes that speech duration and number of communicative verbal acts (as defined above) will ordinarily covary in the same direction. By extrapolation, the response matching pattern observed by Matarazzo et al. might also be expected to occur re: number of communicative verbal acts as well as other informative events within the domain of theoretic interest here. Hence, on the assumption expressed in Axiom 2, gross levels of information transfer generated by interactants in initial dyadic encounters are expected to covary in the same direction. Formally stated, the following proposition refers to the combined impact of verbal/nonverbal acts (emitted by a single source) previously defined as either communicative or informative events.

> Axiom 9: As level of information transfer generated by either interactant increases, level of information transfer generated by the counterpart will increase. Decreasing levels of information transfer will be reciprocated with deceasing levels of the same variable.

Second, response matching has repeatedly been found to occur with regard to communication content or type of verbal message exchanged. Worthy, Gary and Kahn (1969), in addition to several studies cited earlier, provide empirical

evidence in support of matching message types involving self-disclosure. Given the influence, for example, of psychological level data on uncertainty reduction as discussed above, it is reasonable to assume that reciprocal content-matching messages will have a direct bearing on information transfer, mutual levels of uncertainty reduction and the outcome of an interaction. For present purposes, this reciprocal relationship focuses exclusively on verbal components of the interaction. In general, levels of a given type of verbal content generated by individual interactants are expected to covary in the same direction. For example, increases in positive verbal reinforcement produced by a given interactant will accompany increases of the same verbal type from the counterpart. It is further assumed that specific types of verbal content are usually conveyed via the standardized use of a relatively specific symbol set. For example, self-disclosure may involve increased use of the first person, singular pronoun. On these accounts, the following response matching association extends to all verbal acts previously included within the larger domain labeled information transfer.

> Axiom 10: As level of a specific type of verbal information transferred by either interactant increases, level of the same type of verbal information transferred by the counterpart will increase. Decreasing levels of a specific type of verbal information will be reciprocated with decreasing levels of the same variable.

Third, primarily by extrapolation from research on related variables, interactants will tend to adopt and reflect what they perceive to be the counterpart's emotional state as inferred from affect displays and other relevant nonverbal cues. Bales (1950) provides indirect evidence for this hypothesis from his analysis of response sequences observed in small groups. For example, stimulus joking behaviors were frequently followed by joking responses. In dyadic contexts, Condon and Ogston (1966) produced evidence for "interactional synchrony" between source and receiver in terms of small movements of hands, head and eyes. Kendon (1968) observed listeners giving continuous kinesic commentary on a speaker's performance, consisting of headnods and changes in facial expression. Nonverbal response matching has also been observed in psychotherapeutic dyads with respect to smiling, gestures and posture (e.g., Rosenfeld, 1967; Scheflen, 1965).

Nonverbal messages are of central theoretic import in this context due to the type of information they convey. Bettinghaus (1973) suggests that nonverbal communciation serves most effectively to reveal information about the communicator per se, rather than about ideas he/she may espouse. Of the five gestural categories classified by Ekman and Friesen (1969), affect displays are particularly important here because they provide access to private emotional states. Hence, they represent a potentially critical

form of self-disclosure. Theoretically then, we would expect affect displays to convey valuable information primarily at the psychological level and to be an integral part of the information transfer/uncertainty reduction paradigm under consideration. By the same token, response matching patterns involving other informative nonverbal acts can be expected to play a crucial role in the management, control and transfer of salient interpersonal information.

The argument here is that response matching patterns observed on several types of nonverbal cues (as reviewed above) warrant the theoretic expectation that reciprocity occurs with respect to all communicative/informative nonverbal acts included by definition in the larger domain, information transfer. The proposition to follow implies that the number of specific emblems, illustrators, affect displays and regulators emitted by individual interactants in initial dyadic encounters will covary in the same direction.

> Axiom 11: As level of a specific type of nonverbal information transferred by either interactant increases, level of the same type of nonverbal information transferred by the counterpart will increase. Decreasing levels of a specific type of nonverbal information will be reciprocated with decreasing levels of the same variable.

At this juncture, focus of the present theoretic development turns more directly to handicapped/nonhandicapped interactions. Reference was made earlier to a series of

programmatic studies indicating the serious "strain in social interaction" present during initial face-to-face encounters between these individual types. This strain is believed to result from prior attitudes of participants toward each other which give rise to uncertainty about the most appropriate communicative strategy for maximizing the quality of their transactions. For instance, Siller et al. (1967) found that nonhandicapped persons participating in their research invariably reported:

> . . . uncertainty about how to comport themselves, e.g., whether to take notice of the disability or not. Frequently and readily, people admit a compulsion to stare, fully realizing that the disabled person would be made uncomfortable by this, and that they, in turn, would be branded as cruel or socially inconsiderate for indulging their curiosity (p. 64).

Goffman (1963) discusses interpersonal interactions with stigmatized persons such as the visibly handicapped in terms of the "pathology of interaction-uneasiness." He describes this condition as "accompanied by one or more of the familiar signs of discomfort and stickiness: the guarded references, the common everyday words suddenly made taboo, the fixed stare elsewhere, the artificial levity, the compulsive loquaciousness, the awkward solemnity" (p. 19). In a similar vein, Davis (1961) noted that this type of personal interaction gives rise to anxiety resulting from an imputation of the handicapped person which expresses itself . . . "in the embarrassment of the normal

by which he conveys the all too obvious message that he is having difficulty in relating to the handicapped person as he would to 'just an ordinary man or woman'" (p. 121). Limited research to date actually examining handicapped/nonhandicapped interactions generally comports with the previous citings (Fontes, Miller & Kaminski, 1978).

As reported at the outset, nonhandicapped individuals tend to increase their physical distance (Kleck, 1969; Worthington, 1974), terminate the interaction sooner and exhibit less variance in their verbal behavior (Kleck, Ono & Hastorf, 1966), demonstrate greater motoric inhibition, i.e., restrict their nonverbal behavior (Kleck, 1968), and manifest more anxiety (Marinelli & Kelz, 1973; Marinelli, 1974) when interacting with handicapped persons. The nonhandicapped also report more emotional discomfort following this type of interaction (Kleck, 1966).

On present evidence, it is conceivable that the uneasiness, apparent ambivalence and strain observed repeatedly when handicapped/nonhandicapped persons interact are essentially akin to, and have their source in, communicative uncertainty as described theoretically above with reference to initial interactions in general. Consequently, it is assumed that the uncertainty reduction perspective proposed earlier can be applied to, and will facilitate basic research on, interactions involving handicapped persons. Differences observed between this type of interaction and

the general case are expected to be quantitative rather than qualitative.

If communicative uncertainty is ordinarily high at the outset whenever strangers interact (Berger & Calabrese, 1975), this condition should be exacerbated when either person bears a visible disability. On that assumption plus prior evidence, the following proposition seems tenable.

> Axiom 12: Initial interactions between handicapped and nonhandicapped persons are characterized by atypically high levels of communicative uncertainty.

Extending the preceding rationale, it is reasonable to further assume that high uncertainty gives rise to the high anxiety previously observed (e.g., Marinelli, 1974) in interactions of this type. Hence, the expectation that uncertainty and state anxiety (Marinelli & Kelz, 1973; Spielberger, 1966) will covary in the same direction. The following proposition refers specifically to initial interactions between handicapped and nonhandicapped persons.

> Axiom 13: As level of communicative uncertainty experienced by either interactant decreases, level of state anxiety experienced by the same interactant will decrease. Increasing levels of state anxiety will accompany increasing levels of communicative uncertainty experienced by the same interactant.

In support of Axiom 11, evidence was cited suggesting that the number of specific affect displays emitted by individuals in dyadic encounters will tend to covary in the

same direction. This presupposes, of course, that a given set of nonverbal cues are perceived and identified with a particular emotional state by the counterpart, perhaps at a low level of awareness. Thus, to the extent that anxiety is typically accompanied by observable and interpretable affect displays, one would expect the level of state anxiety experienced by a given interactant to covary with the counterpart's perception of these anxiety-revealing cues. That is, changes in level of state anxiety experienced by either person should be accompanied by similar directional changes in the counterpart's attribution of this emotional state to the source.

Further research in this area would likely enlighten our understanding of the anxiety syndrome that apparently occurs when handicapped/nonhandicapped dyads initially interact. In conjunction with Axiom 13, the prior association between state anxiety and level of that affect perceived by the counterpart (hereafter labeled perceived state anxiety) leads to the following proposition.

> Axiom 14: As level of communicative uncertainty experienced by either interactant decreases, level of perceived state anxiety (by the counterpart) will decrease. Increasing levels of perceived state anxiety will accompany increasing levels of communicative uncertainty experienced by either interactant.

In support of Axioms 4 and 5, it was reasoned that affiliation is a prerequisite type of positive reinforcement through which social interaction is initiated and ongoing relationships involving other types of information exchange

are encouraged. Intuitively, affiliative information might then be considered a particularly important source of uncertainty reduction in initial encounters, determining whether or not the interaction will continue. More specifically, as affiliative information from a given source increases, the receiver's uncertainty should be reduced, particularly with respect to how he/she is being evaluated by the source. Assuming that affiliative cues normally signal a favorable disposition, as they increase we would expect the receiver to perceive himself/herself as more interpersonally attractive to the source.

Essentially, foregoing arguments amount to the assertion that affiliation is (1) a necessary precondition for uncertainty reduction, in general, involving other types of information and (2) a sufficient condition for reducing receiver uncertainty with specific reference to his/her evaluation by the source. On these accounts, an inverse relationship is posited between uncertainty and perceived interpersonal attraction for initial encounters in handicapped/nonhandicapped dyads. The latter variable refers to the extent to which a given interactant perceives himself/herself as interpersonally attractive to the counterpart.

> Axiom 15: As level of communicative uncertainty experienced by either interactant decreases, the same interactant's perceived interpersonal attraction to the counterpart will increase. Decreasing levels of perceived interpersonal attraction will accompany increasing levels of communicative uncertanity experienced by the same interactant.

Counter the rationale advanced in support of Axiom 15, it may be argued that negative reinforcement or nonaffiliative (as well as affiliative) cues can be equally effective toward reducing receiver uncertainty in the opposite direction with regard to how he/she is being evaluated. That is, recipients of nonaffiliative cues could also be certain of negative evaluation. Thus, both high and low levels of perceived interpersonal attraction could accompany low levels of uncertainty, suggesting a curvilinear relation. The simpler, linear association was posited on two accounts.

First, the rudimentary concept of approach - avoidance underlying present use of the term affiliation does not imply an overtly negative counterpart for affiliative behavior. That is, casual observation suggests that avoidance can usefully be defined as simply a failure to approach. Likewise, nonaffiliation can meaningfully refer to the absence of affiliative cues when unfamiliar persons meet. In which case, nonaffiliation would not ordinarily reduce uncertainty and could conceivably increase it.

Second, the writer suspects that nonaffiliation (or the absence of affiliative cues), as opposed to overt negative communication, does frequently occur in initial encounters, particularly those involving handicapped/nonhandicapped persons. There is some evidence suggesting that overt negative reactions such as straightforward verbal rejection of the handicapped are culturally inhibited (e.g., Siller et al.,

1967; Kleck, 1966) and do not ordinarily occur in interactions of this type. More likely, meaningful interactions fail to develop and termination occurs prematurely (Kleck, Ono & Hastorf, 1966) due to the absence of an appropriate level of affiliative information rather than the presence of distinctly negative information. Hence, Axiom 15 seems the more theoretically sound, heuristically promising approach. One additional proposition completes the propositional framework from which a limited number of possible hypotheses will be generated in Part IV.

On the common assumption that people tend to like those who like them (Brooks & Emmert, 1976), it is reasonable to expect that people are also initially attracted to others who appear to be attracted to them. More specifically, as a receiver's perception of his/her attractiveness to a message source increases, that source will become more interpersonally attractive to the receiver. Thus, perceived interpersonal attraction (i.e., the attractiveness of R to S as perceived by R) and interpersonal attraction (i.e., the attractiveness of S to R) are expected to covary in the same direction. Consequently, given the inverse association posited in Axiom 15, an inverse relationship between uncertainty and interpersonal attraction is also logically warranted.

> Axiom 16: As level of communicative uncertainty experienced by either interactant decreases, the same interactant's interpersonal attraction to the

> counterpart will increase. Decreasing levels of interpersonal attraction will accompany increasing levels of communicative uncertainty experienced by the same interactant.

Testable Theorems

> Science does not aim, primarily, at high probabilities. It aims at high informative content, well backed by experience. But a hypothesis may be very probable simply because it tells us nothing, or very little (Popper, 1955:146).

Presumably, Popper does not mean that the theorist can or should avoid all concern with probability. Axiomatic foundations in the prior section rely heavily on existing theory and prior evidence. To that extent, the following hypotheses do aim at high probabilities. Given current literature in this area, they relate fundamental variables most likely to inform development of more effective communication strategies for both handicapped and nonhandicapped persons. In other words, these basic relationships should be examined empirically first, then discarded if necessary, before search is made for additional and/or other relevant variables. In the latter sense, theorems to follow are primarily concerned with informative content rather than high probability.

Since this theory focuses specifically on handicapped/nonhandicapped dyads, at least three independent

variables are implied: (1) verbal/nonverbal affiliation, (2) verbal/nonverbal congruency, and (3) type of dyadic interaction. In addition, prior axioms express relationships involving five dependent variables: (1) communicative certainty/uncertainty, (2) state anxiety, (3) perceived state anxiety, (4) perceived interpersonal attraction, and (5) interpersonal attraction. Minimally then, the theory will allow generation of fifteen first-order predictions relating three independent variables to each of five dependent variables. Fifteen second-order (A x B) and five third-order (A X B X C) interaction effects are also possible. In the interest of brevity, the sample of fifteen theorems below provides first and second-order examples from which additional hypotheses can easily be constructed. It also reflects that set of theorems with which the writer expects to begin testing the present theory.

Theorems 1 through 5 specify main effects predicted from the primary independent variable, verbal/nonverbal affiliation (abbreviated as V/NV affiliation). Each theorem was deduced from two or more of the prior axioms identified in parentheses. All hypothesized relations to follow presuppose Axiom 1 and refer to initial dyadic encounters between handicapped/nonhandicapped persons.

> Theorem 1: Interactants exposed to increasing levels of V/NV affiliation will report increasing levels of communicative certainty (Axioms 4 and 5).

Theorem 2: Interactants exposed to increasing levels of V/NV affiliation will report decreasing levels of state anxiety (Axioms 4, 5 and 13).

Theorem 3: Interactants exposed to increasing levels of V/NV affiliation will report decreasing levels of perceived state anxiety (Axioms 4, 5 14).

Theorem 4: Interactants exposed to increasing levels of V/NV affiliation will report increasing levels of perceived interpersonal attraction from the message source (Axioms 4, 5 and 15).

Theorem 5: Interactants exposed to increasing levels of V/NV affiliation will report increasing levels of interpersonal attraction toward the message source (Axioms 4, 5 and 16).

Similar hypotheses predicting main effects from the second independent variable can be generated by substituting "V/NV congruency" for "V/NV affiliation" in Theorems 1 through 5. Relevant axioms, in this case, are 1, 8, 13, 14, 15 and 16. Theorems 6 through 10 below identify main effects (holding affiliation constant) predicted as a function of the specific type of dyadic interaction to which this theory applies (i.e., as a consequence of the fact that one interactant is handicapped). In essence, given similar amounts of information transfer, the theory predicts proportionately less uncertainty reduction in handicapped/nonhandicapped dyads since interactions of this type are characterized by atypically high levels of uncertainty at the outset (Axiom 12). Theoretically, other variables depending on uncertainty reduction are expected to follow suit in either a positive or negative direction according

to prior predictions. Again, all subsequent theorems presuppose Axiom 1.

> Theorem 6: Nonhandicapped persons will report more communicative certainty when exposed to the same level of V/NV affiliation generated by a nonhandicapped, as opposed to a handicapped, source (Axiom 12).
>
> Theorem 7: Nonhandicapped persons will report less state anxiety when exposed to the same level of V/NV affiliation generated by a nonhandicapped, as opposed to a handicapped, source (Axioms 12 and 13).
>
> Theorem 8: Nonhandicapped persons will report less perceived state anxiety when exposed to the same level of V/NV affiliation generated by a nonhandicapped, as opposed to a handicapped, source (Axioms 12 and 14).
>
> Theorem 9: Nonhandicapped persons will report more perceived interpersonal attraction (from the counterpart) when exposed to the same level of V/NV affiliation generated by a nonhandicapped, as opposed to a handicapped, source (Axioms 12 and 15).
>
> Theorem 10: Nonhandicapped persons will report more interpersonal attraction (toward the counterpart) when exposed to the same level of V/NV affiliation generated by a nonhandicapped, as opposed to a handicapped, source (Axioms 12 and 16).

The foregoing five theorems focus on reactions of the nonhandicapped interactant. However, given Axiom 12, there is no reason to attribute these reactions to one interactant more so than the other. Hence, the theory allows generation of parallel predictions focusing on reactions of the handicapped participant by reversing the terms "handicapped" and "nonhandicapped" in Theorems 6 through 10.

Five additional theorems complete the present sample. Theorems 11 through 15 posit second-order interaction effects predicted from the two independent variables for which main effects were formalized in prior theorems (i.e., level of V/NV affiliation and type of dyadic interaction). In lieu of additional information, our theory leads to the expectation that these predictors will interact in an ordinal manner (see Keppel, 1973), producing conjoint effects on communicative certainty and other theoretically related variables. This general interaction hypothesis is advanced on two counts.

First, systematic differences between two types of dyads (Theorems 6 through 10) were predicted primarily on account of atypically high levels of uncertainty expected when handicapped/nonhandicapped persons initially interact. Holding V/NV affiliation constant, we reasoned that proportionately less uncertainty reduction would occur in contexts where uncertainty is characteristically higher at the outset. Second, Axiom 4 posits a reciprocal relationship between verbal affiliation and information transfer. Axiom 5 posits a similar reciprocal association for nonverbal affiliation. In combination, Axioms 4 and 5 imply a reciprocal association between level of V/NV affiliation and information transfer. Thus, as information transfer initially increases, further concomitant increases in V/NV affiliation are also expected to occur.

If this is the case, information transfer should increase at an accelerating rate over time, particularly in initial interactions. As a result, given Axiom 1, uncertainty reduction should also occur at an accelerating rate. On this rationale, anticipated conjoint effects of the predictors at hand are twofold: (1) a given input of V/NV affiliation will initially result in proportionately less uncertainty reduction for handicapped/nonhandicapped interactants, and (2) given similar rates of acceleration and proportionately higher levels of uncertainty, overall uncertainty reduction should occur less rapidly in handicapped/nonhandicapped dyads (as opposed to nonhandicapped dyads) during a comparable period of time. In turn, main effects predicted from V/NV affiliation on other dependent variables previously related to uncertainty should increase or decrease less rapidly in dyads involving the handicapped.

Ordinal interactions predicted in Theorems 11 through 15 will be clarified by means of the matrix presented in Figure 2. Suggestive of a factorial design, this matrix illustrates the simultaneous crossing of three levels of V/NV affiliation with two levels of the second independent variable, type of interaction.

Type of Interaction	Level of V/NV Affiliation		
	high	medium	low
NH/NH	1	2	3
H/NH	4	5	6

Note: NH/NH = nonhandicapped/nonhandicapped dyads
H/NH = handicapped/nonhandicapped dyads

Figure 2. Representation of a Factorial Design Crossing Three Levels of Verbal/Nonverbal Affiliation With Two Types of Dyadic Interaction.

The pattern of mean differences in effect size predicted via each theorem will be identified symbolically where:

$\bar{X}_1$ = mean for nonhandicapped persons exposed to a high level of V/NV affiliation generated by a nonhandicapped source;

$\bar{X}_2$ = mean for nonhandicapped persons exposed to a medium level of V/NV affiliation generated by a nonhandicapped source;

$\bar{X}_3$ = mean for nonhandicapped persons exposed to a low level of V/NV affiliation generated by a nonhandicapped source;

$\bar{X}_4$ = mean for nonhandicapped persons exposed to a high level of V/NV affiliation generated by a handicapped source;

$\bar{X}_5$ = mean for nonhandicapped persons exposed to a medium level of V/NV affiliation generated by a handicapped source;

$\bar{X}_6$ = mean for nonhandicapped persons exposed to a low level of V/NV affiliation generated by a handicapped source.

These theorems assume the same rank order of effects predicted previously in Theorems 1 through 10. Each presupposes Axiom 1.

> As nonhandicapped persons are exposed to increasing levels of V/NV affiliation generated by handicapped versus nonhandicapped sources . . .
>
> Theorem 11: Their reported levels of communicative certainty will increase more rapidly when the source is a nonhandicapped person (Axioms 4, 5 and 12).

$$(\bar{X}_1 - \bar{X}_2) > (\bar{X}_4 - \bar{X}_5)$$

$$(\bar{X}_2 - \bar{X}_3) > (\bar{X}_5 - \bar{X}_6)$$

Theorem 12: Their reported levels of state anxiety will decrease more rapidly when the source is a nonhandicapped person (Axioms 4, 5, 12 and 13).

$$(\bar{X}_2 - \bar{X}_1) > (\bar{X}_5 - \bar{X}_4)$$

$$(\bar{X}_3 - \bar{X}_2) > (\bar{X}_6 - \bar{X}_5)$$

Theorem 13: Their reported levels of perceived state anxiety will decrease more rapidly when the source is a nonhandicapped person (Axioms 4, 5, 12 and 14).

$$(\bar{X}_2 - \bar{X}_1) > (\bar{X}_5 - \bar{X}_4)$$

$$(\bar{X}_3 - \bar{X}_2) > (\bar{X}_6 - \bar{X}_5)$$

Theorem 14: Their reported levels of perceived interpersonal attraction (from the counterpart) will increase more rapidly when the source is a nonhandicapped person (Axioms 4, 5, 12 and 15).

$$(\bar{X}_1 - \bar{X}_2) > (\bar{X}_4 - \bar{X}_5)$$

$$(\bar{X}_2 - \bar{X}_3) > (\bar{X}_5 - \bar{X}_6)$$

Theorem 15: Their reported levels of interpersonal attraction (toward the counterpart) will increase more rapidly when the source is a nonhandicapped person (Axioms 4, 5, 12 and 16).

$$(\bar{X}_1 - \bar{X}_2) > (\bar{X}_4 - \bar{X}_5)$$

$$(\bar{X}_2 - \bar{X}_3) > (\bar{X}_5 - \bar{X}_6)$$

The rank order of effects and ordinal interactions predicted in Theorems 11 through 15 are graphically illustrated as shown in Figures 3 and 4 below.

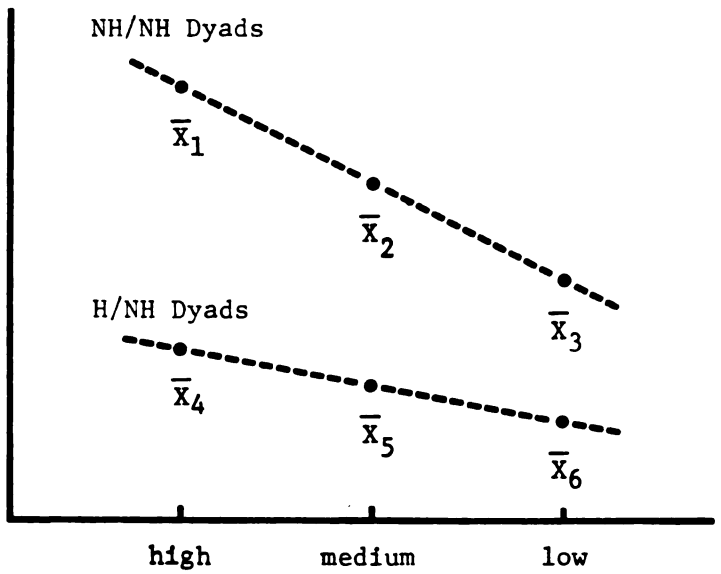

Figure 3. Pattern of Means Showing Rank Order of Effects and Interactions Predicted in Theorems 11, 14 and 15.

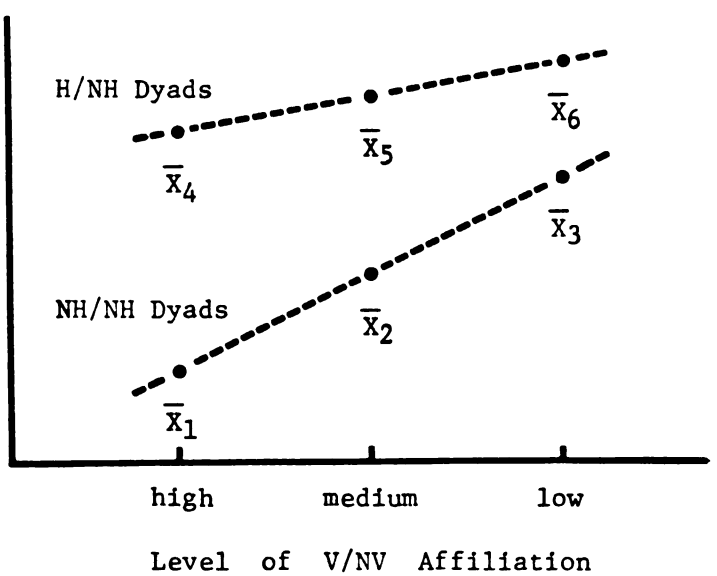

Figure 4. Pattern of Means Showing Rank Order of Effects and Interactions Predicted in Theorems 12 and 13.

CHAPTER II

THE METHOD

Conceptual variables and corresponding operations required for the proposed study are the initial concern of this chapter. Attention is first given to experimental variables implied in prior hypotheses.

The Independent Variables

Definitions and operations presented here anticipate a two-way factorial design to be discussed later in this paper. Effects of two independent factors are to be observed: (1) level of verbal/nonverbal affiliation and (2) type of dyadic interaction. The first factor is a composite index of several verbal and nonverbal variables. That is, level of verbal/nonverbal affiliation is a combination of eight affiliative acts emanating simultaneously across the two channels. First to be defined are four nonverbal indicators of affiliation drawn directly from the Mehrabian/Ksionzky (1972) listing in Table 1 above. These four variables comprise the nonverbal component of the first factor.

A dichotomous manipulation will be used within each channel. Thus, operations to follow describe a relatively high positive level of each variable labeled the affiliative treatment; a relatively low positive (or neutral) level of each variable will constitute the nonaffiliative treatment.

With some modification due to our use of these variables as stimuli, their definitions are consistent with those listed by Mehrabian (1972b, Appendix A). Reliability estimates provided by Mehrabian are shown in parentheses.

A. Nonverbal Indicators of Affiliation

1. Duration of Eye Contact (0.65)
Portion of the interaction between specific dyads when one participant focuses gaze upon head area or eyes of the counterpart, regardless of the latter's gaze direction. (This measure is to be varied in the present study primarily as a function of which participant is speaking.)
Operations by condition:

a. Affiliative - The stimulus message source maintains continuous head area or eye contact with target subject (S) during all verbalizations by S. He/she alters eye gaze direction away from S at natural locations during his/her own verbalizations (e.g., while recalling information from past history or formulating a thoughtful response). Stimulus person diverts eye gaze approximately 50 percent of the time while he/she is speaking. Appropriate locations for changes in eye gaze direction are predetermined via the standardized interview format so as to establish the desired ratio.

b. Nonaffiliative - The stimulus source person maintains head area or eye contact with S approximately 50 percent of the time during verbalizations by S. During his/her own speech production, he/she diverts eye gaze away from S as described in the previous condition.

2. Head-Nodding Movements (0.90)
Cyclical up and down movements of the head commonly used to signal acknowledgment, agreement or approbation. Head nods must be clearly directed toward addressee either during or in response to verbalizations by the latter.
Operations by condition:

a. Affiliative - Moderate use of natural head-nodding movements by the stimulus source person at appropriate locations as predetermined by content of the verbal exchange. He/she presents an average

of three (3) head nods (3 seconds or less duration) per minute throughout the interaction.

b. Nonaffiliative - Use of head-nodding movements by the stimulus source person is eliminated entirely from the interaction.

3. Hand and Arm Gestures (0.94)
Side-to-side, forward-backward, up-and-down, or cyclical movements of hands and arms (including use of fingers) as in natural gesticulation commonly used to illustrate, clarify and/or support the verbal message. Operations by condition:

a. Affiliative - Moderate use of natural hand/arm gestures by the stimulus source person at appropriate locations as predetermined by the content of the verbal exchange. He/she presents an average of two discrete gestural units per minute throughout the interaction.

b. Nonaffiliative - Use of hand/arm gestures by the stimulus source person is eliminated entirely from the interaction.

4. Facial Pleasantness (0.79)
Positive facial expression including natural variations from pleasant affect display to more active smiling behavior commonly used to signal enjoyment, approbation and/or positive attitude. Operations by condition:

a. Affiliative - Stimulus source person maintains distinctly pleasant (slightly positive) facial expressions throughout interaction. Facial affect display is varied to more definite smiling behavior at appropriate locations as predetermined by content of the verbal exchange. Stimulus source person displays an average of two (2) discrete smiling units (3 seconds or less duration) per minute during the entire interaction.

b. Nonaffiliative - Stimulus source person displays appropriate, culturally conditioned smiling behavior during initial greeting exchange with S. Subsequently, he/she maintains neutral, business-like facial expression avoiding positive/negative affect display throughout the interaction. Occasionally, as predetermined by content of the verbal exchange, the stimulus source flashes a polite smile in response to obviously lighthearted or humorous statements by S. An average of one

discrete smiling unit (2 seconds or less duration) per four minute period of interaction is displayed by the source of the stimulus message.

B. Verbal Indicators of Affiliation

Four implicit verbal variables were selected to comprise the verbal component of the first factor under experimental control in this study. Since several of the verbal measures identified with affiliation by Mehrabian and Ksionzky (1972) are redundant indices of the gross amount of conversation produced by their subjects, only two verbal variables selected here were drawn from Table 1 above: (1) number of declarative statements and (2) positive verbal content. Two additional verbal indicators were suggested by results of the previous Mehrabian (1971a) study: (1) verbal reinforcers and (2) number of questions asked. The latter variable, number of questions asked, is modified conceptually here to more consistently represent the theoretical perspective in Section I. Our version of this variable, labeled <u>number of person - oriented questions</u>, is based on the Miller and Steinberg (1975) conceptual distinction between sociological and psychological level data.

The following descriptions attempt to define four relatively exclusive types of implicit verbal information selected to comprise the verbal component of the verbal/nonverbal affiliative stimulus. It is not assumed that an equal number of verbal and nonverbal indicators is sufficient to balance the intensity of the manipulation across

the two channels.

1. Number of Declarative Statements (0.90)
The average number of simple declarative sentences and/or independent clauses spoken per minute by one participant during a complete dyadic interaction. Elliptical statements in which at least one verb form is either expressed (e.g., ". . . Makes sense to me") or clearly implied (e.g., ". . . Quite certain" implying in context, "I am quite certain") are included in this category. Expressions of positive content (as defined below) that meet the foregoing criteria are also included in the total number of declarative statements used to establish this average. Operations by condition:

a. Affiliative - Using a standardized interview format, the interaction is predetermined to include an average of six (6) declarative statements per minute by the source of the stimulus message.

b. Nonaffiliative - The stimulus source simulates a business like demeanor by expressing a limited number of declarative statements that function as topic transitions and/or substantive responses to questions and comments by the interviewer. He/she conveys comparatively less willingness to divulge information than is the case in the affiliative condition described above. The standardized interview is predetermined to include an average of four (4) declarative statements per minute by the stimulus source person.

2. Positive Verbal Content (0.86)
The average number of discrete instances per minute when the choice of words used by one participant conveys a positive attitude toward the addressee or toward the interaction in progress with the addressee. Discrete instances of positive verbal content are identified as single words (e.g., "Great!"), elliptical expressions (e.g., ". . . Interesting question!), or complete statements (e.g., "This has been most informative") expressed in response to messages produced by the counterpart. Operations by condition:

a. Affiliative - Using a standardized interview format, the interaction is predetermined to include an average of one and one-half (1.5) expressions of positive verbal content per minute by the stimulus source.

b. Nonaffiliative - Expressions of positive verbal content by the stimulus source are limited primarily to the formal introduction and closing of the interview. The standardized interview is predetermined to include an average of one (1) positive verbal expression by the stimulus source per each two minute period of interaction.

3. Verbal Reinforcers

Brief vocalizations that express acknowledgment or understanding of messages produced by the addressee. Verbal reinforcers are common vocal responses that may or may not represent words generally accepted as part of the standardized usage (e.g., "uh-huh," "hmmm," "Okay," or "Really!"). Verbal reinforcers usually occur during or immediately after messages produced by the counterpart to whom the reinforcement is addressed. Operations by condition:

a. Affiliative - The standardized interview is predetermined to include an average of three (3) verbal reinforcers by the stimulus source person during each two minute period of interaction.

b. Nonaffiliative - Use of verbal reinforcers by the stimulus source is negligible in this condition (i.e., their use is eliminated with the possible exception of instances in the verbal exchange where the complete absence of some verbal acknowledgment would normally be perceived as awkward or impolite).

4. Number of Person - Oriented Questions

Based on the Miller and Steinberg (1975) conceptualization of interpersonal communication, person-oriented questions are designed to elicit idiosyncratic, psychological level information for the purpose of distinguishing the addressee as a unique individual from other persons who hold membership in the same or similar social groups (e.g., age, sex, ethnic affiliation, socioeconomic status, culture, political affiliation, etc.). For present purposes, this variable is defined as the average number of such questions raised by one participant during dyadic interaction over a specified period of time.

In an employment interview context, a question of this type might solicit information regarding the addressee's personal perspective on a current, business-related issue e.g., "I was just wondering what you see as the number one problem or challenge in this business today?" Operations by condition:

a. Affiliative - The standardized interview is designed to present an average of one (1) person-oriented question by the stimulus source person per each two-minute period of interaction.

b. Nonaffiliative - Person-oriented questions are eliminated entirely in this condition. Each personal question appearing in the affiliative verbal version of the standardized interview is de-personalized by shifting the focus of each request to company policies and/or perspectives, e.g., "I was just wondering what SRA sees as the number one problem or challenge in this business today?"

To this point, four nonverbal and four verbal variables have been defined conceptually; two levels of control, labeled affiliative and nonaffiliative, were operationalized for each of the eight variables. Within each channel the four variables will be combined at the same level of control to establish two composite indices of affiliative information. Hence, in combination, the four nonverbals controlled at the affiliative level will comprise the affiliative nonverbal component of the first factor under observation here. Likewise, the same variables controlled at the nonaffiliative level will comprise a nonaffiliative nonverbal component of the first factor.

Similarly, the verbal variables are combined at each level of control to establish the affiliative verbal and nonaffiliative verbal components of the same experimental factor.

The second experimental factor to be introduced, type of dyadic interaction, is designed to isolate differential effects of communication resulting specifically from

initial interactions between handicapped/nonhandicapped persons as opposed to similar transactions between nonhandicapped individuals. Effects of varying levels of verbal/nonverbal affiliation will be compared across two types of initial dyadic interactions: (1) nonhandicapped with nonhandicapped persons (NH/NH) and (2) nonhandicapped with handicapped persons (NH/H). The distinguishing feature of these two types of interaction, handicapped persons, required further definition.

Review of relevant literature indicates that a standardized definition of the term "handicap" does not exist to date. Confusion over the meaning of the term becomes even greater when "impaired" and "disabled" are used as synonyms for "handicapped." The Urban Institutes Report on the Comprehensive Service Needs Study (RCSNS, 1975) points out that relevant literature on problems encountered by the handicapped contains ". . . a melange of uses of the terms 'impairment,' 'disability,' and 'handicap'; and a melange of programs and purposes. It seems that the terms disability and handicap can mean whatever one wants them to mean" (pp. 21-22).

In lieu of precise definition, one finds a plethora of categorical systems for classifying various handicaps, developed primarily by social agencies. These classification systems vary substantially depending on the objectives of a given organization (cf. Wilder, 1971, 1975; Allen &

Cinsky, 1972; Rehabilitation Service Manual, 1976).

Relative to the focus of this research, the definitional problem is compounded by the fact that persons with the same or similar handicaps may vary significantly in terms of the degree of neurological damage, motoric restriction, and consequently, their ability to encode verbal/nonverbal messages. Conversely, persons with radically different disabilities (by various conceptual schemes) may experience similar communication problems. Hence, it is the writer's view that extant definitions and classification systems are of little value for defining the type of dyadic interaction presently under study. As a result, descriptive parameters based primarily on the functional criteria described below were established to identify a limited segment of the handicapped population.

Two types of disability representing opposite extremes on the functional-cosmetic continuum developed by Siller, Ferguson, Vann and Holland (1967) will be combined to represent the handicap stimulus in our nonhandicapped/handicapped interactions. First, facial distortion was selected because it is believed to rank highest among visible disabilities on anxiety arousal and aversion to interaction for nonhandicapped persons (Siller, Chipman, Ferguson & Vann, 1967). Second, amputation was selected because amputees are typically perceived (1) as less dependent on others, (2) as more "normal" in their personal development, and (3) as suffering

fewer social consequences than persons with congenital defects (Siller, Chipman, Ferguson & Vann, 1967).

In moderate degree, this combination of visible disabilities (facial distortion with amputation of one lower limb) was selected to convey a general impression of disability that might represent a variety of specific physical limitations (e.g., hemiplegia) without generating an extremely aversive stimulus.

For purposes of the present study, a handicapped person is defined as an individual with the following descriptive and functional characteristics:

1. Slight facial distortion potentially capable of interfering with the process of encoding verbal/nonverbal messages
2. Distinct physical disability potentially capable of inhibiting the process of encoding nonverbal messages (e.g., as in the general case of amputees, hemipelegics, parapelegics, etc.)
3. Normal psychological development and use of mental faculties
4. Normal sight and hearing ability
5. Normal speech production (i.e., without discernible speech impediment)

Conversely, a nonhandicapped person is defined as an individual who shares the latter three functional normalities described above, without facial disfigurement or discernible physical disability of any type. Operations by condition:

1. Nonhandicapped/Handicapped (NH/H)
Handicapped person, a right leg amputee (below the kneecap), is the stimulus message source. He/she

is presented, and remains throughout the interaction, in a hand-driven wheelchair. Slight muscular distortion of the face (right side) is discernible from the corner of the mouth to the cheekbone. The latter affect can be simulated by voluntary contraction of the cheek muscle or use of liquid collodion. Interacting counterpart is a nonhandicapped person.

2. Nonhandicapped/Nonhandicapped (NH/NH) Both the stimulus message source and the interacting counterpart are nonhandicapped persons (as defined above) in this condition.

Preceding operations which define two levels of the second factor, complete the description of relevant independent variables.

The Dependent Variables

Extensive rationale supporting the selection of five dependent variables, implied in prior research hypotheses, was provided in the theoretical portions of this paper. First, level of uncertainty is a central intervening variable in the uncertainty reduction paradigm presented there. This variable is expected to provide a definitive link between varying amounts of affiliative communication and the remaining four dependent measures presently under observation (cf. Figure 1 above): (1) level of state-anxiety, (2) perceived level of state-anxiety re: the counterpart, (3) interpersonal attraction, and (4) perceived interpersonal attraction re: the counterpart.

Second, the degree of covariation between the two anxiety measures is expected to shed light on the reciprocal effects of anxiety-revealing cues and the escalation

syndrome theorized earlier.

Third, since the selected stimulus indicators of affiliation have been shown repeatedly to be primary referents of social interaction, the two measures of interpersonal attraction are expected to provide further insight into the anxiety-reducing effects of varying levels of verbal/nonverbal affiliative communication. The following conceptual and operational definitions delineate use of these variables in the proposed study.

1. Level of Uncertainty: Uncertainty is defined as the absence of relevant information used by a message source to: (1) predict the most likely alternative among plausible responses the addressee may give, (2) select the most likely alternative among plausible interpretations for a response that has been given by the addressee, and (3) ultimately control the effects of his/her own communicative efforts in favor of desired outcomes.

Measurement: Level of uncertainty is measured by means of a 10 item Likert-type scale, an adaptation and extension of the 7 item CLUES instrument developed by Clatterbuck (1979) to measure attributional confidence. As modified here (cf. Appendix B, items 1-10), the instrument presents ten complete sentences in question form (e.g., How are you of your general ability to predict the way this person is likely to behave in different situations?). Each item offers a 6-point response field ranging from "very

uncertain." Items 1, 3, 4, 5 and 7 were adopted, with minor modification, directly from the Clatterbuck CL7 instrument.

Five additional items were generated in an attempt to increase likelihood of valid/reliable measurement, given the relatively recent and untried instrument developed by Clatterbuck. Item 2 was designed to tap the retroactive mode of the uncertainty construct, i.e., it represents a general measure of confidence in interpreting responses provided by the addressee. Item 6 focuses directly on the proactive mode of this variable requesting an assessment of confidence in the predictability of the addressee's responses to communication in general. Items 8, 9 and 10 are more specific questions related to the topic of the last item included in the CL7 instrument (How well do you know him/her?). For example, item 8 asks, "How certain are you about whether or not this person is highly motivated toward his/her work?"

Individual responses to each item are coded on a scale from one to six (1 = very uncertain, 6 = very certain) and summed across the ten items to provide a gross measure of uncertainty for each respondent ranging from 10 to 60.

2. Level of State-Anxiety: State-anxiety is defined as a transitory condition of the organism characterized by subjective, consciously perceived feelings of apprehension and tension which are accompanied by activation or arousal

of the autonomic nervous system (Marinelli & Kelz, 1973; Spielberger, 1966).

Measurement: Level of state-anxiety will be measured by a slightly modified version of the A-State Scale drawn from the State-Trait Anxiety Inventory (STAI) developed by Spielberger, Gorsuch and Lushene (1970). Measures of internal consistency reported by the authors using Cronbach's (1951) alpha coefficient ranged from .83 to .92 for this scale. The A-State instrument asks respondents to assess their present emotional states by comparison with each of twenty statements (e.g., I feel calm) via selection of one of four options: (1) not at all, (2) somewhat, (3) moderately so, and (4) very much so. In this instance, due to its post-interaction administration, the verb form for each item on the scale was changed to the past tense (e.g., I felt calm) and initial instructions were altered to focus on the preceding interaction (cf. Appendix B, items 11-30).

Individual responses to each item are coded on a scale from one to four (1 = very much so, 4 = not at all) for all items describing a low-anxiety state. The scale is reversed for items describing a high-anxiety state. Scores are summed across the 20 items to provide a gross measure of state-anxiety ranging from 20 to 80.

3. Level of Perceived State-Anxiety: The concept of state-anxiety reported above also defines this variable. By contrast with the former measure, perceived state-anxiety

refers to the respondent's assessment of how much state-anxiety was manifest by his/her counterpart during their interaction.

Measurement: Level of perceived state-anxiety will be measured by means of the Spielberger et al. (1970) A-State Scale with the following modifications: (1) verb forms are altered from the present to the past tense, (2) first person, singular pronouns in each item are changed to third person, singular, masculine/feminine form (e.g., He/she felt calm), and (3) initial instructions are re-written to focus the respondent's assessment on his/her counterpart during the previous interaction (cf. Appendix B, items 40-59). Scoring procedures are identical to those described for level of state-anxiety immediately above.

4. Level of Interpersonal Attraction: Interpersonal attraction is defined as the degree of liking, preference for, and/or positive conceptual evaluation reported by participants in dyadic encounters with regard to each other or their interaction per se (Mehrabian, 1969).

Measurement: In an attempt to increase the likelihood of valid measurement, level of interpersonal attraction will be assessed by means of two independently developed instruments purported to operationalize this variable.

a. The first attraction measure consists of two items adopted directly from Byrne's (1971) Interpersonal Judgment Scale. A split-half reliability

coefficient of .85 is reported for this scale by Byrne and Nelson (1965). Two bogus items from the IJS, assessing intelligence and social adjustment of the stimulus person, enclose the relevant items (cf. Appendix B, items 31-34).

Items of interest with modified instructions appear in final form as follows:

Below are several items asking you to evaluate the person you interviewed. Please read each item carefully. Then place a check (✓) in the blank beside one response that best described your assessment of this person. Note that the response alternatives sometimes appear in reverse order.

1. How well do you think you would like this person if you became better acquainted?
   ___I feel that I would probably dislike this person very much.
   ___I feel that I would probably dislike this person.
   ___I feel that I would probably dislike this person to a slight degree.
   ___I feel that I would probably neither particularly like nor particularly dislike this person.
   ___I feel that I would probably like this person to a slight degree.
   ___I feel that I would probably like this person.
   ___I feel that I would probably like this person very much.

2. How difficult do you think it would be to work with him/her?
   ___I believe it would be extremely easy to work with this person.
   ___I believe it would be easy to work with this person.
   ___I believe it would be easy to work with this person to a slight degree.

___I believe it would be neither particularly difficult nor particularly easy to work with this person.
___I believe it would be difficult to work with this person to a slight degree.
___I believe it would be extremely difficult to work with this person.

Individual responses to these two items are coded on a scale from one to seven (1 = most negative response, 7 = most positive response) and summed across items to provide a gross measure of attraction for each respondent ranging from 2 to 14.

b. The second measure consists of a five-item social attraction scale (SAS) drawn from the factor-analytic work of McCroskey and McCain (1974) on multiple dimensions of interpersonal attraction. Several similar studies (e.g., McCain & Repensky, 1972; Wakshlag, 1973) confirm the presence of at least three important dimensions underlying the general attraction construct: social, physical and task attraction. Given the nature of our stimuli as well as the type and context of interactions under study, the latter two dimensions, physical and task attraction, were intentionally eliminated.

The McCroskey and McCain scale used here taps what they call "a social or liking dimension" of interpersonal attraction. This Likert-type instrument presents five complete statements (e.g., I think he/she could be a friend of mine).

Each item offers a 7-point response field ranging from "strongly agree" to "strongly disagree" (cf. Appendix B, items 35-39). McCroskey and McCain report an internal consistency estimate of .75 for the 5 items comprising this scale.

Individual responses to these five items are coded on a scale from one to seven (1 = strongly agree, 7 = strongly disagree) and summed across items to provide a gross measure of attraction for each respondent ranging from 5 to 35.

5. Level of Perceived Interpersonal Attraction: The concept of interpersonal attraction presented above also defines this variable. By contrast with the former measure, perceived interpersonal attraction refers to the respondent's assessment of how interpersonally attractive s/he was to the counterpart during their interaction.

Measurement: With slight modification, the IJS and SAS scales described above will be used to measure respondents' perceptions of interpersonal attraction as inferred from behaviors exhibited by the interacting counterpart.

Instructions guiding use of the modified IJS and SAS require an explanation of procedures to be presented later in this paper and, consequently, will not be reproduced here (cf. Appendix B, Instructions preceding item 60). The following changes were required in the interest of face validity:

a. IJS-P: Each of seven statements comprising relevant IJS items were altered to focus the assessment on evaluative responses of the counterpart by substituting appropriate personal pronouns according to the following pattern: "I feel that he (instead of 'I') would probably like me (instead of 'this person') very much" (cf. Appendix B, items 60-63). Scoring procedures are identical to those previously described for the IJS.

b. SAS-P: More extensive formal changes were required for the five statements comprising the SAS. These items were modified in the following manner:

1) I believe this person feels that I could be a friend of his/hers.

2) I believe s/he feels that it would be difficult to meet and talk with me again.

3) I believe this person feels that I just wouldn't fit into his/her circle of friends.

4) I believe s/he feels that we could never establish a personal friendship with each other.

5) I believe this person would enjoy having a friendly chat with me again.

Each of the foregoing statements offers a 7-point response field ranging from "strongly agree" to "strongly disagree" (cf. Appendix B, items 64-68). Scoring procedures

are identical to those described for the previous SAS instrument.

The Design

A two-way factorial design was selected for the present study on several grounds. First, factorial designs offer an efficient way to examine the manner in which several variables combine to influence human behavior jointly--within a single experiment. They are particularly useful for assessment of interactive (non-additive) effects. According to Keppel, "the factorial experiment is probably most effective at the reconstructive stage of a science, where investigators begin to approximate the 'real' world by manipulating a number of independent variables simultaneously" (1973:170). Thus, a factorial design tends to afford greater external validity and increase the generality of findings. It is this particular feature that recommends use of the factorial design here. In contrast with much prior research focusing largely on exclusive effects of one channel (e.g., the import of eye contact) a major rationale for the present study is the contention that verbal/nonverbal messages usually occur simultaneously and serve interdependent functions.

Furthermore, each channel potentially involves a complex network of interrelated variables. Hence, it seems intuitively more realistic and heuristically promising at this stage, given salient variables isolated within each

channel by previous research, to begin systematically to observe concurrent effects of these key variables at varying levels across the two channels.

In this instance, the complexity resulting from a combination of eight verbal/nonverbal variables representing one factor, in conjunction with two types of interaction (the second factor), could reasonably be expected to increase likelihood of interactive effects. In short, "if behavior is complexly determined, we will need factorial experiments to isolate and to tease out these complexities" (Keppel, 1973:182).

Second, a key advantage of this design is its economy. In standard form, the factors are completely crossed, i.e., every possible combination of experimental treatments representing all factors can be examined via bilateral comparisons using a minimal number of subjects. Separate bivariate experiments of comparable statistical power would require a far greater subject pool. In addition, as suggested earlier, the factorial design provides an efficient means of assessing the interactive effects hypothesized in the theoretical section of this paper.

More specifically, with regard to the experiment at hand, two composite indices of affiliative communication comprising the nonverbal components of the first factor were developed earlier. Likewise, two composite indices of affiliative communication via the verbal channel were

described in detail. Hence, four composite variables emerge to comprise the first factor in various combinations. They are labeled as follows:

1. Verbal affiliation (V - Aff)
2. Verbal nonaffiliation (V - Nonaff)
3. Nonverbal affiliation (NV - Aff)
4. Nonverbal nonaffiliation (NV - Nonaff)

If both channels are represented in each treatment condition, four combinations of these variables are possible: (1) verbal affiliation/nonverbal affiliation, (2) verbal nonaffiliation/nonverbal affiliation, (3) verbal affiliation/nonverbal nonaffiliation, and (4) verbal nonaffiliation/nonverbal nonaffiliation.

In addition, two levels of the second factor, type of dyadic interaction, were previously defined:

1. Nonhandicapped with nonhandicapped persons (NH/NH)
2. Nonhandicapped with handicapped persons (NH/H)

Figure 2 represents a 2 x 4 factorial design proposed to examine main as well as joint effects of four levels of verbal/nonverbal affiliation and two types of dyadic interaction.

An Overview of Procedures

The major objective of this study is insight into communicative processes engaging handicapped/nonhandicapped persons in the context of an initial employment interview (cf. the initial research question, p. 5 above).

Moreover, our particular interest lies in potentially positive/negative effects that may accrue for handicapped persons as a result of their own communication when they occupy the role of interviewee in pursuit of gainful employment. Ultimately, this research is an attempt to identify communicative behaviors emitted by handicapped sources that will generally enhance (or diminish) the likelihood of positive evaluation and ceteris paribus a successful interview. Hence, the proposed experimental research strategy will

	Level of Verbal/Nonverbal Affiliation			
Type of Interaction	V - Aff / NV - Aff	V - Nonaff / NV - Aff	V - Aff / NV - Nonaff	V - Nonaff / NV - Nonaff
NH/NH	1	2	3	*
NH/H	4	5	6	*

KEY: NV - Aff = Nonverbal Affiliation
V - Aff = Verbal Affiliation
NV - Nonaff = Nonverbal Nonaffiliation
V - Nonaff = Verbal Nonaffiliation
NH/NH = Nonhandicapped/Nonhandicapped Interaction
NH/H = Nonhandicapped/Handicapped Interaction

*Note: The fourth treatment level of the first factor was subsequently deleted from this design for reasons to be discussed with experimental procedures below.

Figure 5. Graphic Representation of a 2 x 4 Factorial Design Crossing Four Levels of Verbal/Nonverbal Affiliation With Two Types of Dyadic Interaction

necessarily focus on the handicapped interviewee as source of the stimulus message. All dependent measures will be drawn from nonhandicapped sources occupying the role of interviewer.

In view of the complex manipulations involved, it was judged to be virtually impossible, even for an accomplished professional actor, to repeatedly produce the required number of verbal/nonverbal cues in a live interview context where the counterpart is free to communicate extemporaneously (i.e., if the counterpart was to remain naive and the interaction appear valid). In short, it would be extremely difficult, if not impossible, to stimulate a realistic live interview and reliably standardize the stimulus manipulation even within a single treatment condition.

Thus, in the interest of maximum ecological validity it was considered more reasonable, under rigorous control, to produce a single audio/visual record of the stimulus manipulation for each treatment condition (re: both experimental factors) and to incorporate this medium into the format of an actual employment interview.

More specifically, the strategy is to conduct a series of actual employment interviews with applicants for public relations, personnel-type positions that require interpersonal evaluation and interviewing skills. Applicants for these positions would then be exposed to a recorded videotaped interview and asked to report their reactions to,

and evaluations of, the person delivering the stimulus message in the role of interviewee. Preparation of the stimulus videotapes began with the development of a complete script for use as the standard, two-way interview to which relevant verbal/nonverbal cues could be added (or deleted) to represent the desired treatment conditions.

The Standard Stimulus Interview

Several current works on the initial selection interview (e.g., Lopez, 1975; Moffatt, 1979) were consulted to inform the construction of an authentic employment interview taking account of recent trends in interviewing technique. The standard stimulus interview was designed so as to include the appropriate number of verbal/Nonverbal cues (generated by the interviewee) to correspond with the first treatment level of the first experimental factor (i.e., verbal affiliation/nonverbal affiliation) as operationalized earlier. This procedure was adopted since the first treatment level involved the largest number of verbal/nonverbal cues under control; each subsequent treatment represents a reduction in the number of cues generated by the interviewee via either one or both channels.

The amount of verbal communication generated by each participant in the standard stimulus is approximately balanced in accord with emphasis on dialogue, mutual questioning and shared initiative in the current literature on interviewing (e.g., Morgan & Cogger, 1980). The principle

of a balanced dialogue essentially guided our determination of the appropriate number of relevant verbal cues to be included in the verbal component of the standard script. The appropriate number and location of relevant nonverbal cues were added to the verbal script in consultation with a professional actor/director from the Department of Theatre at Michigan State University. The complete script of the standard stimulus interview including identification and location of all relevant cues representing the affiliative verbal/affiliative nonverbal treatment level appears in Appendix A. The interview is approximately fourteen minutes in length.

The Videotaped Stimuli

Several considerations stemming from use of a videotaped stimulus (in lieu of a live stimulus) encouraged an abbreviation of the full design presented in Figure 4. First, the potential loss of nonverbal effects (e.g., eye contact) via the videotape medium was a primary concern. Given the theoretical import of nonverbal communication in this study, high quality, professional videotaping was considered imperative. In addition, the complexity of the manipulations involved made extensive training of the confederate interviewee necessary before each treatment level could be recorded. In terms of available resources, the total cost of professional services required to produce high quality videotaped stimuli across eight experimental conditions was

prohibitive.

Second, data collection procedures built into the live employment interview including exposure to the pre-recorded stimulus were expected to require from fifty minutes to one hour of time per applicant. Again, in the interest of conservation, given our best estimate of a small effect size due to the videotape medium, it was considered most reasonable to opt for greater statistical power by distributing the feasible number of subjects across six, as opposed to eight, experimental conditions.

Third, ethical considerations also placed some constraints on the suitable number of subjects to be used in this study. As noted earlier, an important part of the research strategy proposed here is use of an actual employment interview. For this purpose, six part-time jobs were created with resources available to the study. In consultation with other researchers and the guidelines for use of human subjects at Michigan State University, it was judged ethically appropriate to limit the number of actual interviews per job to a ratio of 1/20-25. Hence, the writer projected a maximum available N of 150 persons.

On these accounts, the decision was made to proceed with development of six stimulus videotapes representing experimental conditions 1 through 6 in Figure 4. The final two control conditions (starred) representing the fourth treatment level of the first factor were deleted since they

are of least theoretic interest.

During the summer of 1979, a professional male actor with union credentials was hired to role-play the handicapped/nonhandicapped interviewee in production of all six stimulus videotapes. The identical script was used for both types of interaction at each level of the first factor (e.g., conditions 1 and 4). All verbal/nonverbal cues (with the exception of changes in eye contact) and their locations within each of three completely scripted interviews were memorized by the confederate re: his role as interviewee. A training period of approximately two weeks separated each of three recording sessions; two conditions representing the same level of the first factor (e.g., 1 and 4) were videotaped consecutively during each session.

The simulated interviews were recorded professionally on Scotch brand (UCA 60) three-quarter inch, color videocassettes using network quality cameras in the studios of Continental Cablevision, Lansing, Michigan. All six interviews were videotaped against the same wood-paneled background, using bookshelves and upholstered furniture to simulate a typical executive office.

Playing the role of nonhandicapped interviewee (conditions 1, 2 and 3), the confederate was seated in a small armed chair facing directly into the camera throughout the interview after initial greetings. In the role of handicapped interviewee (conditions 4, 5 and 6), the confederate

occupied a wheelchair during the interview in the same position relative to the camera. The wheelchair was modified to conceal the confederate's right leg below the kneecap. Padding was used to extend and enlarge the kneecap, giving a more realistic appearance of amputation.

The interview in all conditions was conducted by the writer off camera. Only the voice of the interviewer was recorded in order to focus attention of the viewer exclusively on the interviewee.

The camera range was established on two criteria: (1) the view should be as close as possible to clearly disclose nonverbal cues, and (2) the physical disability should remain in view throughout the interaction. Hence, visual range of the camera was held constant in all conditions, circumscribing the interviewee from slightly below the knees to slightly above the head. Width of the picture extended approximately two feet on both sides of interviewee's chair.

Anticipating use of these videotapes in the live interview, eye contact with the viewing subject (in the role of interviewer) was established by focusing the interviewee's gaze directly into the eye of the camera. Changes in eye contact were signaled with cue cards located immediately left of the camera.

The Live Interview

As the overview above indicated, this study proposes to observe effects of prior experimental manipulations in

the context of a series of live employment interviews. Subjects will be drawn from applicants for six part-time employment positions requiring some social interaction and interviewing skills. Each applicant will be interviewed individually according to the following procedures.

During an initial telephone contact, each respondent will be provided with information regarding the nature of the positions being offered and specific procedures to be used in the interview including written application, the videotaped interaction, the questionnaire and approximate length of the required interview. Contingent upon the respondent's initial agreement, interviews will be scheduled by appointment at intervals of one hour.

In the interest of clarity, one dimension of the live interview requires explanation before the entire procedure can be reviewed intelligibly. It was the researcher's original intent to record two physiological measures (i.e., heartrate and skin conductance) of the subject's internal reaction during exposure to the videotaped stimuli in the live interview. These measures commonly appear in the literature (e.g., Marinelli & Kelz, 1973; Marinelli, 1974) as reliable indicators of the dependent variable labeled <u>state anxiety</u> in this paper. In this instance, the physiological measures were to be used as an additional index of state anxiety and compared with self-report measures (Spielberger, Gorsuch & Lushene, 1970) described earlier.

Use of physiological measures was abandoned on the likelihood of producing a ceiling effect re: state anxiety, in the context of real competition for employment.

In lieu of their actual use, the writer proposes to introduce (at the outset of the live interview) the possibility of measuring the subject's internal reactions via heartrate and skin conductance as an added incentive toward accurate self-reporting. Ostensibly, physiological measures would be taken only in the event that additional information is required to interpret, clarify and/or confirm initial self-report responses. In order to reinforce subject perceptions of this possibility, the interview room will be equipped with a Gilford digital cardiotachometer (Model 120/122), a Yellow Springs dermohmmeter (Model 22A) and a Varian strip chart recorder (Model 9176) in clear view of the subject.

Employment opportunities created for purposes of this study will be offered, and the related interviews conducted, under the name of a bogus research firm, Social Research Associates (SRA). After the usual social amenities and personal introductions, each incoming applicant will initially receive the following detailed briefing and cover story:

> We appreciate your interest in SRA, Mr./Ms._____. Since our procedures are somewhat different than the typical employment interview, I'd like to explain exactly what you can expect to transpire here during the next 45 minutes, and to answer any questions you

may have. We are using a standardized interviewing technique designed to offer each applicant an equal opportunity for employment by providing us with relatively objective information about his/her qualifications. The information you provide will be analyzed carefully. It will be compared with that provided by other candidates as a basis for our decision concerning your employment. These procedures are also being used experimentally to help us evaluate their effectiveness for equal opportunity employment and to discern more effective means of communication in interview situations. Any questions at this point? (Questions are to be answered here as straightforwardly as possible without jeopardizing the experiment.)

The job for which you are applying requires certain, well-developed social interaction skills. For example, some individuals are more aware of their own feelings, attitudes, and internal reactions than are others. Some people are able to read and interpret the reactions of another person more accurately than are others. These procedures have been carefully designed to tell us how well you are able to identify and accurately report your own initial reactions to unfamiliar persons. They will also measure your ability to tell how unfamiliar persons have reacted to you.

We're going to ask you to complete three tasks and, possibley, a fourth one. First, we'd like you to fill out a fairly standard employment application requesting demographic information, personal references, and so on.

Second, you will view a 14 minute videotape of an employment interview conducted here at SRA some time ago. You will notice immediately that the person conducting the interview does not appear on the monitor. However, you will hear his voice. Mr. Tom Holtrop is the person being interviewed. We would like you to assume that <u>you</u> are actually conducting this interview over a televiewer and that all Mr. Holtrop's actions and responses are being addressed directly to you.

Third, following the videotape, you will be asked to report your own internal reactions during the interview and your assessment of responses provided by Mr. Holtrop in a two-part questionnaire. The questions will assume that you have actually conducted the interview. When Part I of the questionnaire is complete, you will return it to me. While you are completing Part II, we will initially evaluate the level of information you have provided in Part I.

If additional information is required to adequately evaluate your responses, we will then ask you to meet

> and talk briefly with Mr. Holtrop, in person. We will, of course, give you a list of typical interview questions to help you get started. During your live conversation with Mr. Holtrop, we would like to measure your physical reactions, i.e., your heartrate and skin response, with the machines you see here. (Interviewer briefly demonstrates simple finger/earlobe attachments to nearby machines and activates one dial.) These measures are known to provide highly reliable information concerning what internal reactions you actually experienced. This information will be used to clarify and confirm your written responses.
>
> Please note carefully that these procedures are not designed to detect deception. We are simply attempting to discern how well "in touch" you are with your own internal reactions as well as those of others, particularly unfamiliar persons, and the extent to which you can report them accurately. Do you have any questions about these procedures? Would you be agreeable and comfortable with the physical measurements just described if we should find them useful? Obviously, you are under no obligation to continue the interview.

At this point, all questions raised by the applicant will receive straightforward answers without disclosing the specific nature and purpose of the experiment. When the applicant has explicitly expressed clear understanding and a willingness to proceed, s/he will be asked to move to a small table and chair located directly in front of a Sony Trinitron color receiver/monitor (Model CKV-171) and connecting Sony videocassette recorder (Model VO-1600) with playback capability. The applicant is seated at a range of 3.5 feet from the monitor. S/he is asked to complete the one-page employment application.

Attention of the applicant will then be directed to the following explanation (fixed to the table surface) introducing the videotaped stimulus.

PLEASE READ THIS INTRODUCTION CAREFULLY!

> The videotaped employment interview you are going to see was conducted by Mr. Douglas Milton, a project coordinator for Social Research Associates (SRA), on September 4, 1979. Mr. Holtrop, the person being interviewed, has applied for a full time apprentice position with the research team directed by Mr. Milton. The interviewer, Mr. Milton, has intentionally been eliminated from view to focus your attention on the interviewee, Mr. Holtrop.
>
> This videotaped presentation should allow you to enter into the actual experience of the interviewer without having to be concerned about how to conduct the interview. Your task is to assume that you are actually conducting this interview, that the voice of the unseen person is your own, and that Mr. Holtrop's verbal/nonverbal reactions are addressed directly to you. Do you have any questions?

When all questions have been satisfied, the interviewer (experimenter) will activate the videocassette recorder for playback, darken the interview room, and exit, to minimize distraction during exposure to the stimulus.

The interviewer will reenter the room immediately at the end of the videotape, restore lighting, and deactivate the electronic equipment. The applicant will then be asked to read general instructions provided on the cover sheet of the questionnaire and to complete Part I (Items 1-68). No time constraints are imposed.

All relevant dependent measures (re: hypothesized relationships) are contained in Part I of the questionnaire. Upon completion, Part I is returned to the interviewer for an initial evaluation. While the applicant is addressing Part II (Items 69-80), the interviewer will examine Part I in the applicant's presence, ostensibly to determine whether

or not additional information will be required via live interaction with Mr. Holtrop and the physiological measures.

When Part II is complete, the applicant will be told that the level of information s/he has provided in Part I appears, on initial assessment, to be quite adequate and that the live interaction with Mr. Holtrop will not be necessary. The following information will terminate the interview:

> This concludes our interview procedure, Mr./Ms._____. We sincerely thank you for the time and effort it has required. Please be assured that your application will receive careful consideration. Our personnel director expects to render a decision regarding your employment within the next week to ten days. Since these positions are to be awarded competitively, every effort will be made to render a fair decision based primarily on the objective information you provided here today.
>
> Regardless of the outcome, you will be informed of that decision as soon as possible either by letter or by telephone. Should you desire any additional information regarding our evaluation of your application or the experimental use of this material, please feel free to contact us after _____(date).
>
> Again, thank you for your application and cooperation.

In accord with the foregoing commitment, each of six employment positions created for purposes of this study will be awarded primarily on the basis of objective information via the questionnaire in a manner to be described below.

Unsuccessful applicants will receive the following letter and compensation in the amount of five dollars in consideration of the time required to conduct the interview.

539 South Kedzie
Michigan State University
East Lansing, MI 48824

Dateline

Dear Applicant:

Thank you for your interest in Social Research Associates. Your recent application for employment has been carefully reviewed and we regret that we are unable to offer you employment at this time.

In consideration of your time and effort during the one-hour interview we required, compensation in the amount of five dollars is enclosed.

Again, we thank you for your interest and cooperation.

Sincerely,

SOCIAL RESEARCH ASSOCIATES

Gordon L. Dahnke
Personnel Manager

GLD/rl

The Questionnaire

Part I of the questionnaire is comprised of seven separate scales designed to measure five dependent variables under observation in this study. These scales were described in detail earlier. Their arrangement in Part I is random with one qualification. Two modified versions of the Spielberger et al. (1970) A-State Scale and two versions of Byrne's (1971) IJS were intentionally separated by at least one other scale to minimize inter-scale response patterns. Likewise, the response alternatives to each successive item throughout the entire questionnaire appear in reverse order to minimize intra-scale response patterns (cf. Appendix B, items 1-68).

Part II of the questionnaire is designed to serve two purposes. First, items 69 through 74 comprise a check on the experimental manipulations. Assuming that discrepant verbal/nonverbal cues may be perceived as an indication of deception, items 69 and 72 ask respondents to assess the truthfulness/trustworthiness of the stimulus message source. Given our intent to vary the degree of verbal/nonverbal congruency across treatment levels of the first factor, items 70 and 73 are designed to assess perceptions of similarity/dissimilarity in verbal/nonverbal messages encoded by the stimulus source. More basically, our manipulations purport to vary the amount of affiliative communication generated by the stimulus message source. Hence, items 71

and 74 request assessments of the level of friendliness/ sociability exhibited by Mr. Holtrop during the videotaped interview.

Second, the remaining items in Part II (75-80) tap one potentially important, extraneous variable that could have considerable bearing on the results of this study. It is intuitively reasonable to expect the respondent's prior experience with handicapped persons to exert some influence on his/her reactions to the handicapped interviewee in experimental conditions 4, 5, and 6. Hence, items 75 and 79 are nominal measures of prior work experience and ongoing social relationships with handicapped persons. These items are designed to provide a gross indication of the impact of prior experience on our findings via post hoc analyses. Response alternatives a and c (referring to minority/elderly persons) under items 75 and 79 are bogus questions intended to diffuse the respondent's exclusive focus on the handicapped issue.

If initial results (re: items 75 and 79) invite additional post hoc analyses, information provided via item 76 (re: extent of work experience with the handicapped), item 77 (re: nature of duties performed), and item 80 (re: nature of ongoing relationships with handicapped persons) should allow a more precise definition of the relationship between prior experience and other variables under study here. Item 78, requesting identification of an employer

in support of a positive response(s) to item 75, is designed to constrain the accuracy of information provided by the respondent.

Similarly, instructions used to introduce the latter section of Part II (items 75-80) were designed to reduce the likelihood of inflated responses by participants attempting to qualify for employment:

> The following information will not affect your evaluation for the present job. It may help us to determine which of our current projects and in what capacity you could serve most comfortably.

Recruitment and Selection

The writer proposes to recruit one hundred and forty-four nonhandicapped participants for this study via classified advertisement in a local newspaper, The State News, published daily on campus at Michigan State University. The ad will offer part-time employment to responsible persons with well-developed social interaction skills to serve as research assistants for an independent firm, Social Research Associates. Available positions will be described as requiring 10-15 hours of work per week for a period of 8-10 weeks, to be compensated at the rate of five dollars per hour.

Depending on personal interests and qualifications, successful candidates will be engaged in one or more phases of the actual research process. Specific duties may include: interviewing potential participants, laboratory preparation/

maintenance, recording observations, data coding, and clerical work.

Seventy-two male and seventy-two female applicants will be interviewed on a first-come basis. Twelve male and twelve female participants will be randomly assigned to each of the six experimental conditions to minimize potential sex-related differences. Applicants who agree to the interview during initial telephone contacts will be placed on a waiting list. Appointments will then be scheduled by return call enabling the experimenter to balance the sex of the sample.

On eithical considerations, selection procedures proposed below were adopted in an attempt to meet three criteria:

1. Each applicant should have an equal opportunity to qualify for employment.

2. Employment should be offered to the most highly qualified applicants in accord with the task required, and job specifications described, during the live interview.

3. Determination of qualifications should be based primarily on objective information provided by applicants via the questionnaire.

Equal opportunity and an evaluation based on performance of the required task would necessarily limit competition for a given position to applicants exposed to the same stimulus. Thus, one applicant will be selected from the group of 24 persons assigned to each of six experimental conditions.

Two objective measures will be used to evaluate the applicant's social interaction skills from his/her performance during the live interview:

1. The extent to which an individual's total score on the manipulation check instrument (summed across items 69-74 reflects accurate perception of the similarity/dissimilarity in verbal/nonverbal cues generated by the stimulus source. Assuming that the dissimilar manipulations, for example, in conditions 3 and 6 were to some extent successful, a lower total score would reflect greater awareness of the discrepancy.

2. The degree of consistency between responses to items 69-74 and the same individual's reported level of uncertainty via items 1, 3, 4, 5, 6 and 7. On the assumption that discrepant verbal/nonverbal cues reduce the amount of information available to the receiver, level of uncertainty should covary with the respondent's perception of that discrepancy. Six items were selected from the 10-item uncertainty scale to balance the number of items being compared across the two scales. This procedure will allow straightforward use of the Pearson r to obtain a measure of consistency for each applicant.

In turn, the two measures described above will be combined to establish a single performance rating for each applicant. Individuals with the highest rating within each treatment group will be offered employment. In the event that a single candidate does not clearly emerge within each group via this procedure, other factors such as prior research experience, formal training, and general impressions of motivation will be considered to finalize the selection process.

A Summary

The foregoing discussion describes a method for the conduct of research proposed in Section I of this paper. First, eight independent variables were defined conceptually; two levels of control were operationalized for each variable. Four verbal and four nonverbal variables were defined in this manner anticipating their use in various combinations to comprise the first experimental factor under observation, amount of affiliative communication. Second, two types of dyadic interaction engaging nonhandicapped and handicapped persons were defined conceptually and operationalized in anticipation of their use as a second experimental factor.

Third, conceptual definitions were provided for five dependent variables: uncertainty, state-anxiety, perceived state-anxiety, interpersonal attraction, and perceived interpersonal attraction. Instruments designed to measure these variables were also described in detail.

Fourth, a rationale was presented in support of the proposed two-way factorial design. We reviewed general data collection procedures and outlined construction of the standard script for use in the stimulus interview. Methods and procedures used to record the stimulus videotapes were reported. A step-by-step protocol for the live employment interview was proposed. Previously unexplained portions of the questionnaire format were clarified. Finally, we introduced a feasible method of recruiting 144 participants

and drafted an equitable, objective procedure for selecting six qualified candidates.

Employment of these persons in subordinate roles during execution of this study is an integral part of the method proposed here in pursuit of ecological validity. The writer contends that it is time at least to "begin to approximate the 'real' world" (Keppel, 1973:170) in our study of human communication.

CHAPTER III

THE RESULTS

Analyses of four types are reported in this chapter. First, the sample is described in terms of demographic variables and prior experience with handicapped persons. Random distribution of these characteristics across experimental conditions is examined extensively. Second, analyses designed to assess the strength of experimental manipulations used in the study are reported. Third, factor analyses and reliability tests conducted on all dependent measures are presented in detail. Finally, results of statistical tests examining empirical support for each of fifteen experimental hypotheses are systematically reviewed.

The Sample

Seventy-two male and 72 female persons participated in the study. Sex of subject was counterbalanced such that 12 males and 12 females were assigned to each of six experimental groups. Hence, the distribution of male/female participants per se required no additional analysis.

Mean age of the entire sample was 22.53 years (s.d.= 3.74). Results of a two-way ANOVA indicated no significant overall age differences across treatment groups ($F < 1.0$, $df = 3$, $p > .05$). Male participants averaged 23.40 years of age (s.d. = .198). Mean age of the female segment was

21.66 years (s.d. = 2.99). This sex by age difference was statistically significant via a two-tailed T-test ($T = 2.86$, $df = 142$, $p < .05$).

Random assignment of male participants by age was assessed using two-way ANOVA. Results were nonsignificant ($F < 1.0$, $df = 3$, $p > .05$). The distribution of females by age across treatment groups was examined in the same manner with a similar result ($F < 1.0$, $df = 3$, $p > .05$).

The sample averaged 15.70 years of formal education (s.d. = 1.60). Again, two-way ANOVA was used to assess the assignment of all subjects by formal education. No significant differences occurred ($F = 1.86$, $df = 3$, $p > .05$). Male participants reported more formal education ($\overline{X} = 16.05$, s.d. = 1.68) than female participants ($\overline{X} = 15.36$, s.d. = 1.45). This sex by education difference was statistically significant via results of a two-tailed T-test ($T = 2.64$, $df = 141$, $p < .05$).

Level of education for male participants did not differ significantly across treatment groups as indicated by two-way ANOVA ($F < 1.0$, $df = 3$, $p > .05$). Results of the same test did reveal significant differences in level of education for female participants across treatment groups ($F = 2.97$, $df = 3$, $p < .05$).

Marital status was initially observed via four categories with the following results: 23 persons were married, 117 single, one widowed and three divorced. The latter two

categories were collapsed with the single type due to small frequencies. Chi-square for k-independent samples was used to assess the distribution of single persons across treatment groups. No significant differences emerged (X^2 = 1.257, df = 2, $p > .05$).

Small frequencies in several experimental groups constrained use of Fisher's exact probability test to assess the overall distribution of married persons. Results were significant ($p < .05$) indicating nonrandom assignment of married persons across treatment groups.

No significant sex by marital status differences were found using chi-square for two independent samples (X^2 = 3.31, df = 1, $p > .05$). Fisher's exact probablility test was used to assess the distribution of married females. Results were nonsignificant ($p > .05$). The same test indicated significant differences in the distribution of married males across treatment groups ($p < .05$).

Results of the chi-square for k-independent samples revealed no significant differences in the distribution of single males (X^2 = 1.93, df = 2, $p > .05$) or single females ($X^2 < 1.0$, df = 2, $p > .05$) across treatment groups.

Priór employment experience involving handicapped persons was considered critical as a sample characteristic potentially capable of confounding results of this study. Consequently, participants were asked to indicate whether or not they had previously worked in an organization providing

professional services for the handicapped (cf. Appendix B, item 75). Thirty-three persons included in the sample (22.9%) provided an affirmative response. Hence, this characteristic was scrutinized in several ways.

First, the distribution of all respondents reporting some work experience with the handicapped was examined via chi-square for k-independent samples. Frequencies relative to this variable did not differ significantly across treatment groups ($X^2 = 2.60$, df = 2, $p > .05$).

Second, the sample was stratified by sex to ascertain differences occurring between male/female participants with regard to employment involving handicapped persons. Results of the chi-square test for one sample were nonsignificant ($X^2 < 1.0$, df = 1, $p > .05$).

Third, random assignment of females with employment experience of this type was assessed using chi-square for k-independent samples. Again, no significant differences across treatment groups emerged ($X^2 = 1.06$, df = 2, $p > .05$). The identical chi-square produced similar nonsignificant results for the male segment of the sample ($X^2 = 2.55$, df = 2, $p > .05$).

Participants' prior social experience with handicapped persons was considered equally important as a potential confounding factor. Questionnaire item 79 asked participants to indicate whether or not they had previously maintained a regular social relationship with handicapped

individual(s). Fifty persons (34.7%) provided an affirmative response. Random assignment of this variable for the overall sample was examined via chi-square for k-independent samples. No significant differences across treatment groups were found ($X^2 < 1.0$, $df = 2$, $p > .05$).

Results of the chi-square for one sample indicated no significant differences between male/female participants relative to prior social relationships with the handicapped ($X^2 < 1.0$, $df = 1$, $p > .05$). Distribution of females reporting some social history of this type was assessed using chi-square for k-independent samples. No significant differences occurred ($X^2 < 1.0$, $df = 2$, $p > .05$). The identical test for male participants was nonsignificant ($X^2 < 1.0$, $df = 2$, $p > .05$).

In sum, foregoing analyses indicate that all sample characteristics considered relevant were randomly distributed with the following exceptions. First, male participants were significantly older and had more formal education than the female segment of this sample. Second, level of education for female participants was unequally distributed across experimental groups. Third, married persons in general and married males in particular were nonrandomly assigned to treatment conditions. Implications of deviations from random assignment will be examined and discussed post hoc.

Assessment of Experimental Manipulations

Observations were made on two experimental factors: (A) level of verbal/nonverbal affiliation and (B) type of dyadic interaction. Given the attempt to manipulate eight variables simultaneously on Factor A, direct assessment of their success was considered particularly crucial for interpreting results of this research. Thus, response patterns and the magnitude of effects attributable to Factor A are examined below in detail.

Factor B manipulations were not assessed directly in an attempt to minimize response bias. The concern was to avoid direct reference to the physical condition of the stimulus source who appeared as an amputee occupying a wheelchair in the handicapped/nonhandicapped treatment (H/NH) of Factor B. Given use of the videotape medium, hindsight suggests that some assessment of the extent to which this manipulation was effective would have been useful.

Three levels of affiliative communication comprised Factor A. On theoretic grounds, treatments were ordered (left to right) according to predicted effects of high - medium - low magnitude. The following sequence of treatments was an integral part of the research design: (a) V-Aff/NV-Aff, (b) V-Nonaff/NV-Aff, and (c) V-Aff/NV-Nonaff (cf. Figure 5, p. 81). Hence, determination of the success of these manipulations, as well as subsequent analyses, will depend in part on the extent to which the data approximate

this pattern. Three types of assessment were made relative to Factor A.

First and foremost, prior treatments varied verbal/nonverbal affiliation. As previously defined, affiliative communication is expected to effect perceptions of friendliness or sociability. Thus, first concern of the manipulation check was to measure perceptions of the stimulus source's sociability. A two-item scale was developed for this purpose:

1. How friendly did you perceive Mr. Holtrop to be during the interview?

2. How sociable did you perceive Mr. Holtrop to be during the interview?

These parallel items were separated in the final questionnaire; each provided a 4-point response field (cf. Appendix B, II, 71 and 72).

Pearson's r produced an acceptable estimate of internal consistency for the sociability scale ($r = .70$). Individual responses were summed across scale items and analyzed via two-way ANOVA. Results indicated a significant main effect for Factor A ($F = 18.02$, $df = 2$, $p < .01$). Marginal means for Factor A in Table 2 clearly show the expected direction of effects. However, this outcome was complicated by an A x B disordinal interaction ($F = 9.88$, $df = 2$, $p < .01$). Hence, the main effect cannot be completely interpreted without reference to an accompanying interaction of this type (Keppel, 1973).

Table 2. Means Resulting From Manipulation Check Data-Ratings of Sociability

Type of Interaction		Level of V/NV Affiliation a	b	c	$\bar{X}$
NH/NH	(1)	6.50a	5.92ad	4.38	5.60
H/NH	(2)	6.04ab	4.79c	5.33bcd	5.39
$\bar{X}$		6.27	5.35	4.85	$\bar{\bar{X}} = 5.49$

Note: Cell means subscripted with a common letter do not differ significantly.

The disordinal interaction is reflected in an inverted order of means occurring at the low level of Factor A (condition c). All cell means in Table 1 comport with the expected pattern excepting that located at c, 2. Although nonsignificant, the difference between marginal means for Factor B is worth noting. On the average, the handicapped source was perceived as somewhat less sociable than the non-handicapped source during H/NH type interactions (condition 2).

Using Scheffé's test, significant differences were found for 7 of 15 post-hoc comparisons between treatment means as identified by subscripts in Table 1. Alpha was set at .10 as recommended by Scheffé (1959). Tukey's test produced exactly the same results ($\alpha = .05$). These tests were chosen for their conservatism regarding experimentwise Type I error. Both tests were conducted in this case to compare results. Subsequent analyses will rely on the Tukey test to maintain a consistent alpha level at .05. The magnitude of

Factor A effects was estimated by means of eta squared (η^2 = .19), a moderately strong effect for social science data (Cohen, 1969).

In addition to varying affiliative cues, Factor A manipulations reflect a second major concern of the research. In theory, handicapped persons of the type under study may be expected to exhibit fewer nonverbal cues in support of their verbal communication than physically able persons. At some level, this nonverbal deficit may lead to perceptions of incongruent V/NV communication. On prior research discussed in Chapter I, perceptions of incongruency can be expected to bear negative consequences, particularly in an employment interview. Hence, Factor A was also designed to vary the level of congruency between (affiliative) V/NV cues produced by the stimulus source.

Condition a attempted to simulate natural communication, i.e., an appropriate and spontaneous level of V/NV congruency in the given context. Condition b replicated a in the nonverbal band with a moderate reduction in the number of verbal cues exhibited. Again in theory, when inconsistent V/NV cues occur simultaneously, nonverbal constituents will dominate in determining the total message impact (e.g., Mehrabian & Ferris, 1967; Mehrabian & Wiener, 1967). Consequently, condition b was expected to effect only a moderate reduction in perceptions of congruency since the nonverbal constituent was comparable to that in condition a.

Condition c replicated a in the verbal band with a moderate reduction in the number of nonverbal cues exhibited. Assuming a dominant nonverbal impact, condition c was expected to effect a low level of V/NV congruency.

A two-item scale was constructed to assess the effectiveness of prior manipulations:

1. How consistent were Mr. Holtrop's facial expressions, gestures and body movements with the meaning of the words he spoke during the interview?

2. How dissimilar (different) were Mr. Holtrop's verbal messages from his nonverbal messages during the interview?

These items were separated in the final questionnaire; each provided a 4-point response field (cf. Appendix B, II, 70 and 73).

Pearson's r produced an acceptable, if not optimal, estimate of internal reliability for the congruency scale ($r = .65$). Individual responses were summed across scale items and analyzed via two-way ANOVA. A significant main effect in the expected direction was found for Factor A ($F = 11.51$, $df = 2$, $p < .01$). A x B interaction did not occur. However, Factor B also produced an unexpected main effect on perceptions of V/NV congruency ($F = 4.66$, $df = 1$, $p < .05$).

As shown in Table 3, all cell means, as well as column marginals representing Factor A, follow the predicted high - medium - low pattern. However, the direction of effects generated by Factor B is of equal theoretic

import for purposes of the study.

Table 3. Means Resulting From Manipulation Check Data - Ratings of V/NV Congruency.

Type of Interaction	Level of V/NV Affiliation a	b	c	$\bar{X}$
NH/NH (1)	6.42a	5.75a	4.50b	5.56
H/NH (2)	6.67a	5.88a	5.71a	6.08
$\bar{X}$	6.54	5.81	5.10	$\bar{\bar{X}}$ = 5.82

Note: Cell means subscripted with a common letter do not differ significantly.

All cell means representing Factor B, condition 2 are higher than their counterparts in condition 1.

Using the Tukey test, 5 of 15 post-hoc comparisons between treatment means in Table 2 produced significant differences (α = .05). Condition c, 1 was the major source of variance, differing significantly from all five remaining means. Magnitude of effects attributable to Factor A was moderate (η^2 = .14). The same index indicated a minor effect size for Factor B (η^2 = .03).

Assuming that incongruent V/NV messages can influence perceptions of the source's integrity (e.g., Ekman & Friesen, 1969; Mehrabian, 1971, 1972), a third assessment of Factor A was made involving the ethical dimension of source credibility. Again, a two-item scale was developed for this purpose:

1. How truthful do you think the responses provided by Mr. Holtrop were during the interview?

2. In general, how trustworthy do you think Mr. Holtrop is?

These items were also separated in the complete questionnaire and included a 4-point response field (cf. Appendix B, II, 69 and 72).

Results of the Pearson r, used as an estimate of internal reliability, were considered unacceptably low for valid measurement (r = .50). In the interest of additional information, individual responses were summed across scale items and subjected to two-way ANOVA. Neither interaction nor main effects were statistically significant. However, inspection of means reported in Table 4 suggests certain trends worth noting in these data.

Table 4. Means Resulting From Manipulation Check Data - Ratings of Source Credibility

Type of Interaction	Level of V/NV Affiliation a	b	c	$\bar{X}$
NH/NH (1)	6.50	6.04	5.71	6.08
H/NH (2)	6.38	6.38	6.46	6.40
$\bar{X}$	6.44	6.21	6.08	$\bar{\bar{X}}$ = 6.24

The column marginals indicate that Factor A treatments did generally influence credibility ratings in the expected direction although the effect was not strong. Row marginals (Factor B) and cell means in condition 2, again suggest generally higher credibility ratings for the handicapped source as in the previous analysis.

Several reasons for the weak effect found in these data are plausible. First, the scale in use was not adequately reliable. The unreliability was likely a function of providing only two items, each requesting a different type of information. Item 69 focused on the truthfulness of statements made during the interview; item 72 requested an evaluation of trustworthiness in general. Source credibility is a dynamic variable that may change rapidly depending on the amount and type of information available (Burgoon & Ruffner, 1978). Hence, given a relatively brief initial interaction, subjects may have had difficulty forming the more general judgment.

Second, there are at least five known dimensions of source credibility, each of which tends to operate independently (Burgoon & Ruffner, 1978). As defined here, affiliation relates specifically to only one of these dimensions, namely sociability. The weak effects reflected in Table 3 may then be due to the fact that the scale in use focused exclusively on a different dimension of source credibility, often labeled character. As measured in this case, source credibility was only remotely related to the substantive content of the original manipulations. In short, affiliative cues may typically have little effect on character evaluations in initial interactions.

Third, differing levels of V/NV congruency were expected to more directly influence credibility ratings.

However, lower levels of Factor A (b and c) involved only a reduction in the number of verbal or nonverbal cues exhibited in condition a. Conceivably, the quantitative difference in either case was not large enough to signal a qualitative difference in messages emanating from the two channels. Stated differently, the absence of certain cues in support of the opposite channel may influence credibility to a lesser extent than the presence of clearly conflicting cues.

In sum, prior analyses support the following conclusions:

1. The experimental manipulations of affiliative communication were relatively effective in the intended direction. Magnitude of the effect was moderately strong.

2. Comparable levels of V/NV affiliation were generally perceived as somewhat less sociable when generated by a handicapped source although the difference was nonsignificant. One clear exception to this pattern occurred when the nonverbal message component was reduced (cf. Table 1,c).

3. The experimental manipulations of V/NV congruency were relatively effective in the intended direction. Magnitude of the effect was moderate.

4. Comparable levels of V/NV congruency were perceived as significantly more congruent when generated by a handicapped source.

5. Factor A manipulations produced a discernible, though nonsignificant, influence on the character dimension of source credibility in the intended direction. The handicapped source was perceived as somewhat more credible although the difference was not statistically significant.

6. The major contribution of variance relative to Factor A came from a reduction in nonverbal affiliative communication. Reducing the number of verbal cues (condition a vs. b) did not generally produce significant differences. One exception to this pattern is shown in Table 1, condition b, 2.

7. Factor B, type of interaction, had a significant impact on perceptions of V/NV congruency and sociability, particularly when the nonverbal message component was reduced.

Unexpected elements in these results regarding the influence of Factor B are of central theoretic import for primary objectives of this study. They are likely to shed considerable light on the interpretation of subsequent findings. It is intuitively reasonable to explain the present effects of Factor B in terms of different sets of expectations operating when nonhandicapped persons engage the handicapped, as opposed to more typical interactions. Attention will be given to these critical issues in Chapter IV.

Factor Analyses on Dependent Measures

Effects of prior manipulations were observed on five dependent variables: communicative certainty, state anxiety, interpersonal attraction, perceived state anxiety and perceived interpersonal attraction. The latter two variables refer to subject perceptions of the stimulus person's affective states. Definitions and operations for these variables are presented in Chapter II and will not be repeated here except as required for clarity.

Observations on all dependent measures (excepting two-item scales noted below) were factor analyzed to assess the unidimensional validity of each scale. The principal-component procedure (unities in the diagonals and eigenvalue default of 1.0) with varimax rotation was initially used in each case. Multi-factor solutions were then forced as necessary to discern appropriate factor structures. Four criteria were established a priori to determine optimal solutions: (1) items must load at a minimum of .60 and crossload at a maximum of .40 to be retained on a given factor, (2) a minimal alpha coefficient of .70 is acceptable within each factor, (3) items associated with each factor must clearly exhibit common meaning, and (4) a maximum number of items meeting the prior criteria should be retained to minimize loss of information.

Certainty/uncertainty experienced by nonhandicapped persons interacting with the handicapped is a key link between independent factors and remaining dependent variables in the theoretical model underlying this study (cf. Figure 1, p. 38). Moreover, the 10-item Likert-type instrument used to measure certainty was relatively untried (cf. Appendix B, I, 1-10). Consequently, the factor structure of observations taken on this scale was scrutinized in several ways.

The initial factor--analytic procedure yielded a two-factor solution with three items failing to load adequately on either factor. In addition, the second factor did not

meet the specified reliability criterion. Controlling for one, two and three-factor structures, trivial items were serially deleted from subsequent analyses in an attempt to identify a satisfactory solution.

In terms of number of items retained, optimal two and three-factor solutions consistently failed to meet the reliability criterion on one or more factors. The single-factor solution reported in Table 5 conformed more adequately with all criteria specified above. Moreover, in terms of content, items loading on this factor appear to reflect the predictive element in interpersonal communication theoretically associated with proactive certainty/uncertainty by Berger and Calabrese (1975). Hence, the factor is labeled proactive certainty. As shown in Table 5, six items will ultimately comprise the certainty measure in subsequent analyses. Cronbach's alpha yielded an acceptable estimate of internal consistency among these items ($\alpha = .74$).

State anxiety was measured by means of a slightly modified version of the 20-item A-State scale (cf. Appendix B, I, 11-30) developed by Spielberger, Gorsuch and Lushene (1970). The initial principal-component procedure (eigenvalue default set at 1.0) with varimax rotation produced a highly unsatisfactory solution. Five factors were extracted with adequate loading/crossloadings for 12 of 20 original items. Only two items loaded adequately on Factor 3; one item loaded on Factor 5.

Table 5. Factor Loadings - Communicative Certainty Scale

	Item	Factor 1 (Proactive Certainty)
	How certain are you . . .	
1.	of your general ability to predict the way this person is likely to behave in different situations?	.685*
2.	that you understood or interpreted this person correctly when s/he spoke to you?	.521
3.	that you know or can predict some of the moral and social values this person holds?	.624*
4.	that you know whether or not this person liked you?	.593
5.	that you know or can predict the basic attitudes that guide this person's behavior?	.661*
6.	that this person will generally respond to your conversation in the way you expect?	.199
7.	that you know or can predict how this person feels about him/herself?	.628*
8.	about whether or not this person is highly motivated toward his/her work?	.625*
9.	that this person is genuinely concerned about whether or not others are at ease in his/her presence?	.600*
10.	of the way s/he would likely treat you as a person if you were working in the same office?	.537

*Indicates item retained on the factor.

One to six-factor structures were then forced while systematically deleting trivial items in search of the optimal solution. The three-factor solution reported in Table 6 was ultimately accepted as conforming most clearly with prior criteria. This decision required a relaxation of the specified alpha level (.70) relative to Factor 3.

Table 6. Factor Loadings - State Anxiety Scale

Item	Factor 1 (Positive)	Factor 2 (Normal)	Factor 3 (Negative)
2. I felt secure.	.659*	.358	.098
3. I was tense.	.205	.633*	.198
4. I was regretful.	.259	-.125	.621*
5. I felt at ease.	.608*	.377	.351
6. I felt upset.	.071	.098	.728*
11. I felt self-confident.	.642*	.333	-.101
12. I felt nervous.	.286	.792*	-.035
13. I was jittery.	.042	.805*	-.039
14. I felt "high strung."	-.043	.628*	.397
16. I felt content.	.740*	-.006	.213
18. I felt over-excited and "rattled."	.013	.283	.694*
19. I felt joyful.	.718*	.004	-.059
20. I felt pleasant.	.715*	.021	.344

*Indicates item retained on that factor.

Items 1, 7, 8, 9, 10, 15 and 17 were deleted from the analysis to reach this solution.

Conceptually, all items loading on Factor 1 clearly reflect positive emotional states (e.g., secure, self-confident, joyful). Those retained on Factor 3 clearly represent adverse reactions with potentially negative consequences, particularly in an evaluative interview (e.g., regretful, upset, rattled). Items associated with Factor 2 appear to occupy middle ground somewhere between the other two factors (e.g., tense, nervous, jittery). That is, some degree of tension might be considered "normal" under given circumstances with the potential for positive or negative consequences depending on the level of reaction. Hence, in lieu of more definitive theoretical information, these three factors were interpreted as positive, normal and negative dimensions of state anxiety. Their alpha coefficients were .82, .74 and .64, respectively.

Interpersonal attraction was measured by means of two scales developed independently and purported to operationalize the conceptual variable of interest here. The first measure consisted of two items adopted directly from Byrne's (1971) Interpersonal Judgment Scale (cf. Appendix B, I, 31-34). Internal consistency of the two items in this context, as estimated via Pearson's r, was somewhat less than optimal ($r = .65$). This result can be explained in terms of more recent factor-analytic studies confirming at least three

dimensions underlying the attraction construct: social, physical and task (e.g., McCroskey & McCain, 1974; Wakshlag, 1973; McCain & Repensky, 1972). Byrne's IJS items appear quite clearly to tap two different dimensions of attraction, social and task.

The second measure consisted of a five-item social attraction scale (cf. Appendix B, I, 35-39) developed by McCroskey and McCain (1974). The initial factor-analytic procedure identified this scale as unidimensional. As shown in Table 7, item two loaded slightly below the specified .60 level. Hence, items 1, 3, 4 and 5 ultimately comprised the interpersonal attraction measure. The alpha coefficient for these items was .85.

Table 7. Factor Loadings - Interpersonal Attraction Scale

Item	Factor 1 (Social Attraction)
1. I think s/he could be a friend of mine.	.853*
2. It would be difficult to meet and talk with him/her again.	.588
3. We could never establish a personal friendship with each other.	.746*
4. I would enjoy having a friendly chat with him/her again.	.845*
5. S/he just wouldn't fit into my circle of friends.	.816*

*Indicates item retained on the factor.

The fourth dependent variable, perceived state-anxiety, refers to a subject's estimate of the level of state anxiety experienced by the stimulus source during interaction. It was measured via a modified version of the 20-item state anxiety scale described above (cf. Appendix B, 1, 40-59).

Initial principal-component procedures produced an unsatisfactory solution. Four factors were extracted with adequate loading/cross loadings for 12 of 20 original items. Only three items loaded adequately on the final two factors. One to five-factor solutions were then forced while systematically deleting trivial items. The optimal three-factor solution, retaining 15 of 20 items, produced an unacceptable alpha coefficient for Factor 3 (α = .60).

As reported in Table 8, a more acceptable two-factor solution was identified by eliminating items 3, 9, 13, 14, 18 and 19 from the analysis. All eight items retained on Factor 1 reflect positive affective states (e.g., joyful, self-confident, secure). Conversely, the six items loading on Factor 2 are clearly negative affects (e.g., worried, jittery, upset). Hence, the factors were labeled positive and negative dimensions of perceived state-anxiety. Alpha coefficients for these factors were .89 and .77, respectively.

The final dependent variable, perceived interpersonal attraction, refers to the subject's estimate of how

Table 8. Factor Loadings - Perceived State Anxiety Scale

Item	Factor 1 (Positive)	Factor 2 (Negative)
1. S/he felt pleasant.	.760*	-.004
2. S/he felt joyful.	.689*	-.012
4. S/he was worried.	.320	.601*
5. S/he felt content.	.710*	.234
6. S/he was relaxed.	.674*	.339
7. S/he felt "high strung."	.008	.726*
8. S/he was jittery.	.147	.688*
10. S/he felt self-confident.	.722*	.259
11. S/he felt comfortable.	.736*	.307
12. S/he felt anxious.	.134	.735*
15. S/he was worried over possible misfortunes.	.152	.628*
16. S/he felt upset.	.346	.660*
17. S/he felt at ease.	.779*	.246
20. S/he felt secure.	.737*	.240

*Indicates item retained on that factor.

interpersonally attractive s/he was to the stimulus source during the interview. Like its conceptual counterpart, interpersonal attraction, this variable was also measured via modified versions of Byrne's IJS and the McCroskey/ McCain (1974) social attraction scale (cf. Appendix B, I, 61 and 62, 64-68).

Zero-order correlations on the two IJS items indicated an extremely low level of internal consistency in this case ($r = .29$). On that account, data collected with this instrument was not considered in subsequent analyses. Fortunately, the alternate perceived social attraction scale was found to be unidimensional and highly reliable. Table 9 reports results of the initial factor-analytic procedure for this scale. Item 4 alone failed to load adequately and was deleted.

Table 9. Factor Loadings - Perceived Interpersonal Attraction Scale

Item	Factor 1 (Social Attraction)
1. I believe this person feels that I just wouldn't fit into his/her circle of friends.	.741*
2. I believe this person would enjoy having a friendly chat with me again.	.800*
3. I believe s/he feels that we could never establish a personal friendship with each other.	.869*
4. I believe s/he feels that it would be difficult to meet and talk with me again.	.522
5. I believe this person feels that I could be a friend of his/hers.	.871*

Since factor loadings can change dramatically with the elimination of a single item, a second analysis was conducted using the identical procedure (minus item 4).

All four items retained loadings on the same factor equal to or higher than those reported in Table 8. The alpha coefficient for these items was .85.

Tests of Theorems

This section reports results of statistical tests conducted on fifteen theorems developed in Chapter I. The theorems are examined in order of their theoretic import according to the model presented in Figure 1. Each ANOVA reported here tested (or partially tested) three related theorems relative to a single dependent variable. Prior to results of each F-test, relevant theorems are presented in verbal and symbolic form for clarity. Individual responses were summed across each unidimensional scale (or scale factor) before conducting the two-way ANOVA. Tukey's test was used for all post-hoc comparisons. Statistical significance was determined at the conventional $\alpha = .05$ level.

Effects on Communicative Certainty

Communicative certainty, the dependent variable in theorems 1, 6 and 11, is centrally related to all other variables in the uncertainty reduction model under study. Theorem 1 predicts a main effect from Factor A on communicative certainty in a high-medium-low direction.

> T1: Interactants exposed to increasing levels of V/NV affiliation will report increasing levels of communicative certainty.

$$\bar{X}a > \bar{X}b > \bar{X}c$$

Theorem 6 predicts a main effect from Factor B such that interactions with the handicapped (H/NH) will generate lower levels of certainty than nonhandicapped (NH/NH) interactions.

> T6: Nonhandicapped persons will report more communicative certainty when exposed to the same level of V/NV affiliation generated by a nonhandicapped, as opposed to a handicapped, source.

$$\bar{X}1 > \bar{X}2$$

Theorem 11 predicts an A x B ordinal interaction assuming the same rank order of effects predicted in T6. That is, H/NH treatments will consistently produce lower levels of certainty than the NH/NH type. In addition, T11 predicts that differences between these two types will increase toward the highest level of Factor A (i.e., the NH/NH curve will increase more rapidly).

> T11: As nonhandicapped persons are exposed to increasing levels of V/NV affiliation generated by handicapped versus nonhandicapped sources, their (NH) reported levels of communicative certainty will increase more rapidly when the source is nonhandicapped.

$$(\bar{X}a1 - \bar{X}a2) > (\bar{X}b1 - \bar{X}b2) > (\bar{X}c1 - \bar{X}c2)$$

Results of the two-way ANOVA testing theorems 1, 6 and 11 are summarized in Table 10. As modified by prior factor analyses, the certainty scale was comprised of six items with a scoring range from 6 to 36. A significant main effect was found for Factor A. Inspection of column marginals in Table 10 indicates that increasing levels of

Table 10. Means and Analysis of Variance Summary for Effects of Verbal/Nonverbal Affiliation and Interaction Type on Communicative Certainty.

Type of Interaction(B)	Level of V/NV Affiliation (A) a	b	c	$\bar{X}$
NH/NH (1)	27.17d	23.42ef	22.58f	24.39
H/NH (2)	26.38de	24.71df	24.79def	25.29
$\bar{X}$	26.77	24.06	23.69	$\bar{X}$ = 24.84

Source	Sum of Squares	df	Mean Square	F	η^2
Affiliation(A)	271.72	2	135.86	6.65*	.09
Type of Interaction(B)	29.34	1	29.34	1.44	---
A x B	56.72	2	28.36	1.39	---
Error	2821.54	138	20.45		
Total	3179.33	143	22.23		

Note: Cell means subscripted with a common letter do not differ significantly.
*p < .05

communicative certainty accompanied increases in V/NV affiliation. Theorem 1 was clearly supported.

Results of the Tukey test show that the major contribution of variance came from NH/NH interactions. Treatments b_1 and c_1 were both significantly different than a_1. Although generally increasing in the predicted direction, H/NH interactions did not differ significantly from the NH/NH type with one exception, treatment a_2 versus c_1. Magnitude of the effect on certainty attributable to

Factor A was moderate for social science data ($\eta^2 = .09$).

The data do not support theorems 6 and 11. Inspection of row marginals in Table 10 suggests a trend quite opposite that predicted in theorem 6. Although differences were nonsignificant, participants generally reported higher levels of certainty when interacting with the handicapped, as opposed to the nonhandicapped, source. The single exception, conforming with the predicted pattern, occurred in the high condition of Factor A (i.e., $a_1 > a_2$). Reverse order of these effects at the two lower levels of Factor A produced a discernible, though nonsignificant, disordinal interaction. Certain trends in these data are worth noting. First, the general direction of certainty effects in both conditions of Factor B approximate the pattern predicted in T1. Second, the rank order of effects in four of six conditions ($b_2 > b_1$; $c_2 > c_1$) is contrary to the pattern predicted in T6. Third, there is a trend toward disordinal interaction contrary to the ordinal type predicted in T11. The pattern of these results is graphically illustrated in Figure 6.

Effects on State Anxiety

Theorem 2 predicts a main effect from Factor A on state anxiety.

> T2: Interactants exposed to increasing levels of V/NV affiliation will report decreasing levels of state anxiety.

$$\bar{X}_a < \bar{X}_b < \bar{X}_c$$

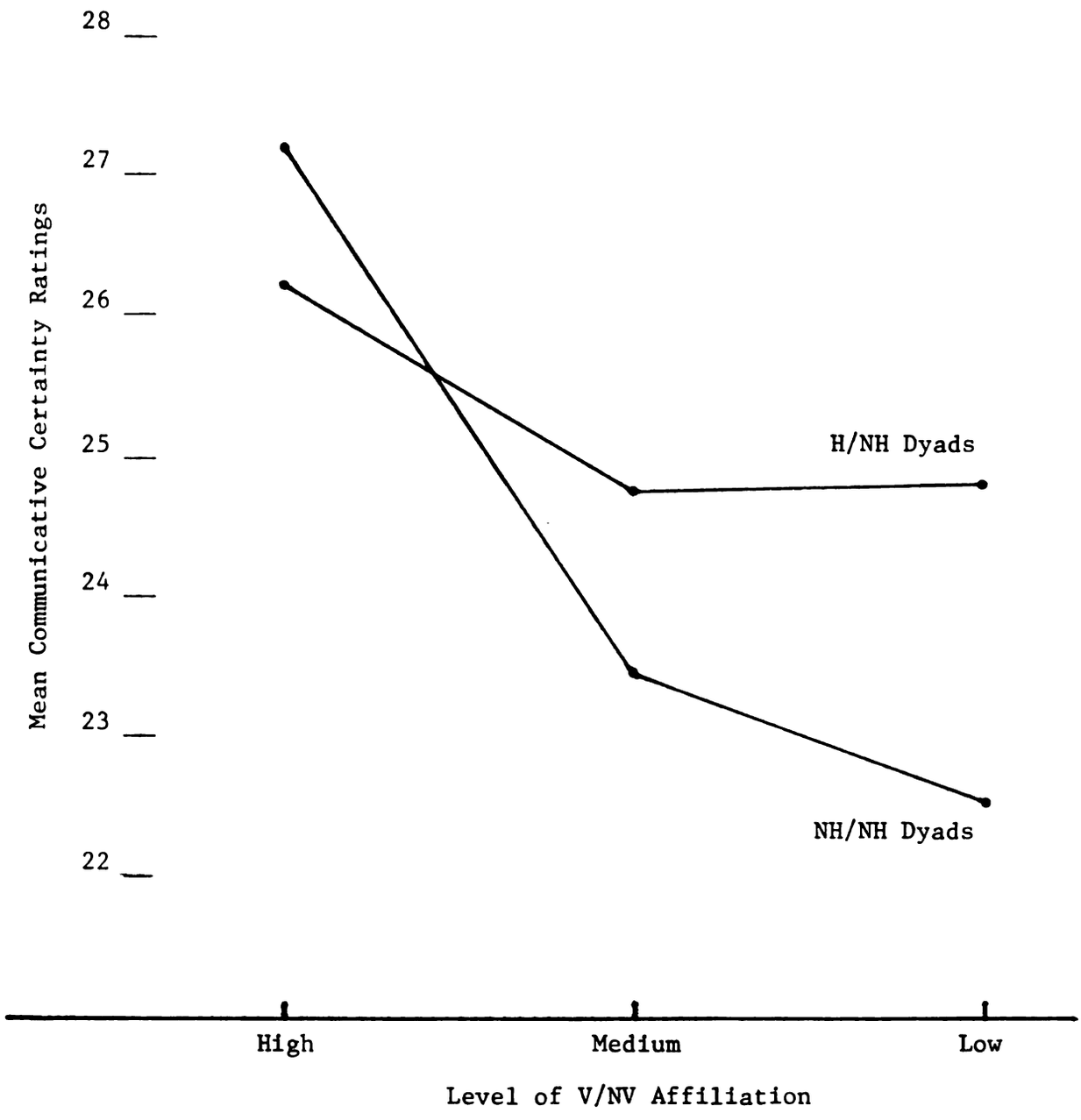

Figure 6. Graphic Representation of Communicative Certainty as a Function of Affiliation and Type of Dyadic Interaction.

Theorem 7 predicts a main effect from Factor B such that interactions with the handicapped (H/NH) will produce higher levels of state anxiety than nonhandicapped (NH/NH) interactions.

> T7: Nonhandicapped persons will report less state anxiety when exposed to the same level of V/NV affiliation generated by a nonhandicapped, as opposed to a handicapped, source.

$$\bar{X}_1 < \bar{X}_2$$

Theorem 12 predicts an A x B ordinal interaction assuming the same rank order of effects predicted in T7. That is, H/NH dyads will consistently produce higher levels of state anxiety. In addition, T12 predicts that differences between these two dyadic types will increase toward the highest level of Factor A (i.e., the NH/NH curve will decline more rapidly).

> T12: As nonhandicapped persons are exposed to increasing levels of V/NV affiliation generated by handicapped versus nonhandicapped sources, their (NH) reported levels of state anxiety will decrease more rapidly when the source is a nonhandicapped person.

$$(\bar{X}_{a2} - \bar{X}_{a1}) > (\bar{X}_{b2} - \bar{X}_{b1}) > (\bar{X}_{c2} - \bar{X}_{c1})$$

Prior factor analyses on the 20-item scale used to measure state anxiety produced a three-factor solution. Accordingly, each of three F-tests to follow represents a partial test of theorems 2, 7 and 12. Six items comprised the first factor (cf. Table 6) identified as a positive dimension of state anxiety with a scoring range from 6 to 24.

No significant differences were found via the two-way ANOVA summarized in Table 11.

Table 11. Means and Analysis of Variance Summary for Effects of Verbal/Nonverbal Affiliation and Interaction Type on State Anxiety - Factor 1.

Type of Interaction (B)	Level of V/NV Affiliation (A) a	b	c	$\bar{X}$
NH/NH (1)	12.63	12.92	15.08	13.54
H/NH (2)	13.38	15.04	14.00	14.14
$\bar{X}$	13.00	13.98	14.54	$\bar{X}$ = 13.84

Source	Sum of Squares	df	Mean Square	F	η^2
Affiliation (A)	58.43	2	29.21	2.20	---
Type of Interaction (B)	12.84	1	12.84	.97	---
A x B	62.18	2	31.09	2.35	---
Error	1829.87	138	13.26		
Total	1963.32	143	13.73		

Although statistically nonsignificant, certain trends in these data are noteworthy. First, inspection of column marginals in Table 10 suggests a pattern of decreasing state anxiety in the direction T2 predicts. Second, row marginals conform with the direction predicted in T7. Indeed, with the exception of c_2, all cell means reflect the pattern of main effects predicted in both T2 and T7.

Third, foregoing comments must be qualified by the disturbance in these data occurring at the low level of Factor A. Reverse of the predicted order of effects at c_1 and c_2 (i.e., $c_1 > c_2$) introduces a trend toward disordinal interaction contrary to T12. The A x B interaction, in this case, reached a .10 level of significance. Additionally, differences between the two types of dyad do not increase toward the high level of Factor A as predicted in T12.

Four items comprised the second factor of the state anxiety scale (cf. Table 6) with a scoring range from 4 to 16. Results of the two-way ANOVA partially testing theorems 2, 7 and 12 via this factor are reported in Table 12. A significant main effect emerged for Factor A. While T2 is partially supported by these data, the column marginals in Table 12 do not clearly conform with the predicted pattern. Participants in general reported slightly more anxiety at the medium versus the low level of Factor A. With that exception, decreasing levels of state anxiety (normal type) accompanied increasing levels of affiliation. Post-hoc comparisons among cell means via the Tukey test were nonsignificant. Magnitude of effects attributed to Factor A on anxiety of this type was small ($\eta^2 = .04$).

Although the main effect predicted for Factor B was nonsignificant, row marginals in Table 12 indicate that NH participants generally reported more anxiety (of this type)

Table 12. Means and Analysis of Variance Summary for Effects of Verbal/Nonverbal Affiliation and Interaction Type on State Anxiety - Factor 2.

Type of Interaction(B)	Level of V/NV Affiliation (A) a	b	c	$\bar{X}$
NH/NH (1)	5.50	6.79	6.46	6.25
H/NH (2)	6.13	6.71	6.71	6.51
$\bar{X}$	5.81	6.75	6.58	$\bar{X}$ = 6.38

Source	Sum of Squares	df	Mean Square	F	η^2
Affiliation(A)	24.01	2	12.01	2.97*	.04
Type of Interaction(B)	2.51	1	2.51	.62	---
A x B	3.01	2	1.51	.37	---
Error	558.46	138	4.05		
Total	587.99	143	4.11		

*p = .05

when the message source was handicapped. All cell means, excepting b_1, conform with the pattern predicted in T7.

Similarly, while T12 was not supported, the data show certain notable consistencies with this theorem. First, inspite of relatively low variance in these data, considerable decreases in state anxiety occurred at the high level of Factor A for both types of interaction. Second, absolute differences between the two dyadic types are most dramatic at the high level of Factor A, i.e., $(\bar{X}a_2 - \bar{X}a_1) > (\bar{X}b_2 - \bar{X}b_1)$ and $(\bar{X}a_2 - \bar{X}a_1) > (\bar{X}c_2 - \bar{X}c_1)$. Exception to

the predicted pattern occurred as a result of small absolute differences at the medium level of Factor A, i.e., $(\bar{X}c_2 - \bar{X}c_1) > (\bar{X}b_2 - \bar{X}b_1)$. These trends may become more or less meaningful in light of subsequent analyses.

Three items comprised the third factor emerging from prior factor analyses on the state anxiety scale. These items appeared consistently to represent a negative type of anxiety (e.g., I felt upset). Factor three had a scoring range from 3 to 12. Results of the ANOVA partially testing theorems 2, 7 and 12 via this dimension of state anxiety apprear in Table 13.

The main effect for Factor A was highly significant ($p = .019$) in the direction predicted. Decreasing levels of state anxiety (negative type) accompanied increasing levels of V/NV affiliation as column marginals in Table 13 indicate. Cell means also follow the predicted pattern in both NH/NH and H/NH interactions. Again, T2 was partially supported. Magnitude of effects from Factor A was reasonable for social science data (Cohen, 1969), $\eta^2 = .06$.

Theorems 7 and 12 were not supported. Across all treatments, NH/NH dyads reported slightly more anxiety (negative type) than H/NH dyads as indicated by row marginals in Table 13. However, all cell means follow the order predicted in T2 and T7 excepting c_2. Anxiety of this type also declined more rapidly for NH/NH dyads in accord with T12.

Table 13. Means and Analysis of Variance Summary for Effects of Verbal/Nonverbal Affiliation and Interaction Type on State Anxiety - Factor 3.

Type of Interaction(B)	Level of V/NV Affiliation (A) a	b	c	$\bar{X}$
NH/NH (1)	3.13d	3.38	4.00d	3.50
H/NH (2)	3.33	3.42	3.58	3.44
$\bar{X}$	3.23	3.40	3.79	$\bar{X}$ = 3.47

Source	Sum of Squares	df	Mean Square	F	η^2
Affiliation(A)	8.01	2	4.01	4.09*	.06
Type of Interaction(B)	.11	1	.11	.11	---
A x B	2.51	2	1.26	1.28	
Error	135.25	138	.98		
Total	145.89	143	1.02		

Note: Cell means subscripted with a common letter are significantly different.
*p < .05

Effects on Interpersonal Attraction

Theorem 5 posits a main effect from Factor A on interpersonal attraction.

T5: Interactants exposed to increasing levels of V/NV affiliation will report increasing levels of interpersonal attraction toward the message source.

$$\bar{X}a > \bar{X}b > \bar{X}c$$

Theorem 10 predicts a main effect from Factor B such that NH/NH interactions will generate higher levels of

interpersonal attraction than the H/NH type.

> T10: Nonhandicapped persons will report more interpersonal attraction (toward the counterpart) when exposed to the same level of V/NV affiliation generated by a nonhandicapped, as opposed to a handicapped, source.

$$\bar{X}_1 > \bar{X}_2$$

Theorem 15 posits an A x B interaction assuming the same rank order of simple effects hypothesized in T10. Additionally, T15 predicts that differences between NH/NH and H/NH dyads will increase in the direction of Factor A, condition a, i.e., the NH/NH curve will increase more rapidly than the H/NH curve.

> T15: As nonhandicapped persons are exposed to increasing levels of V/NV affiliation generated by handicapped versus nonhandicapped sources, their (NH) reported levels of interpersonal attraction (toward the counterpart) will increase more rapidly when the source is a nonhandicapped person.

$$(\bar{X}a_1 - \bar{X}a_2) > (\bar{X}b_1 - \bar{X}b_2) > (\bar{X}c_1 - Xc_2)$$

For purposes of testing theorems 5, 10 and 15, data was collected on two different instruments, the McCroskey and McCain (1974) social attraction scale and Byrne's (1971) interpersonal judgment scale. Internal reliability of the latter 2-item instrument was less than optimal ($\alpha = .65$). In the interest of additional insight, results obtained from Byrne's IJS will subsequently be compared with findings via the more reliable McCroskey/McCain social attraction scale ($\alpha = .85$).

As modified by prior factor analyses, four items comprised the McCroskey/McCain instrument with a scoring range from 4 to 28. Results of the two-way ANOVA assessing effects on interpersonal attraction via this scale are reported in Table 14.

Table 14. Means and Analysis of Variance Summary for Effects of Verbal/Nonverbal Affiliation and Interaction Type on Interpersonal Attraction - Social Attraction Scale.

Type of Interaction(B)	Level of V/NV Affiliation (A) a	b	c	$\bar{X}$
NH/NH (1)	20.04d	18.17	14.92def	17.71
H/NH (2)	19.71e	18.92	19.67f	19.43
$\bar{X}$	19.87	18.54	17.29	$\bar{X}$ = 18.57

Source	Sum of Squares	df	Mean Square	F	η^2
Affiliation(A)	160.22	2	80.11	3.19*	.04
Type of Interaction(B)	106.78	1	106.78	4.25*	.03
A x B	172.06	2	86.03	3.42*	.04
Error	3470.25	138	25.15		
Total	3909.31	143	27.34		

Note: Cell means subscripted with a common letter are significantly different.
*$p < .05$

Both main effects and the A x B interaction were significant. Column marginals in Table 14 indicate that over all participants, increasing levels of attraction accompanied

increases in V/NV affiliation as T5 predicts. However, this general finding does not take complete account of the data in presence of a significant disordinal interaction. In this case, the main effect cannot be interpreted independently of the interaction effect (Keppel, 1973). Inspection of simple effects in Table 14 shows that the major contribution of variance came from NH/NH dyads. Condition c_1 differed significantly from a_1, a_2 and c_2. The pattern of increasing attraction with increasing affiliation predicted in T5 held consistently only at level 1 of Factor B (i.e., in NH/NH dyads). Moreover, magnitude of the main effect from Factor A was small ($\eta^2 = .04$).

Theorems 10 and 15 were not supported. Although the main effect for Factor B was significant, reverse of the order predicted in T10 occurred in two of three conditions (Factor A, b and c) as a result of the A x B interaction. Participants exposed to the handicapped source reported less interpersonal attraction (versus the nonhandicapped source) only at the highest level of Factor A. In addition, while attraction increased more rapidly in NH/NH versus H/NH dyads toward the high level of Factor A, rank order of the simple effects was not in accord with T15. These data are plotted graphically in Figure 7.

Results of analyses on the alternate set of attraction data collected via Byrne's IJS were remarkably consistent with those obtained from the McCroskey/McCain instrument.

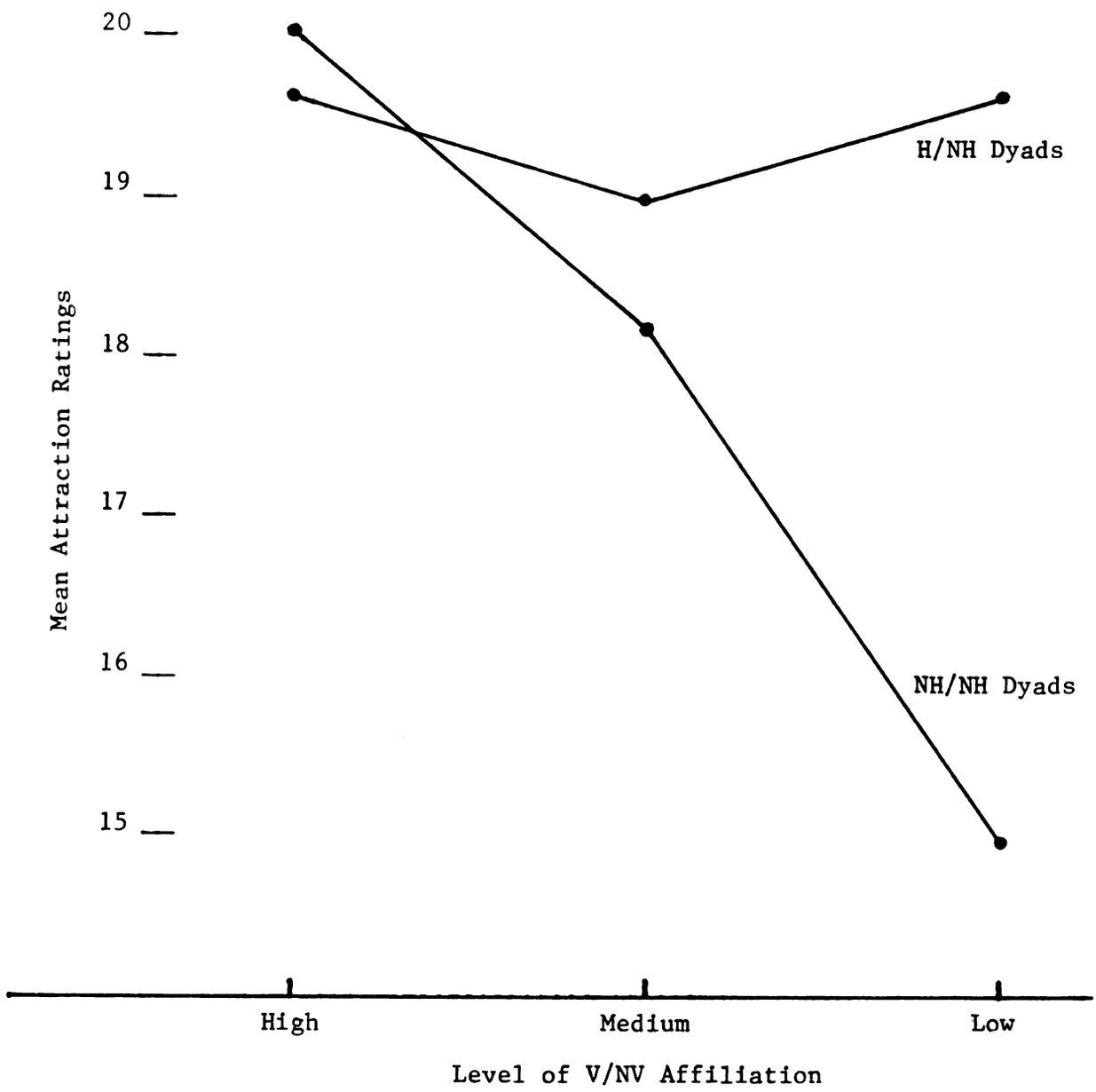

Figure 7. Graphic Representation of Interpersonal Attraction as a Function of Affiliation and Type of Interaction.

Two items comprised the Byrne's scale with a scoring range from 2 to 14. The two-way ANOVA used to analyze these data is summarized in Table 15.

Table 15. Means and Analysis of Variance Summary for Effects of Verbal/Nonverbal Affiliation and Interaction Type on Interpersonal Attraction - IJS Scale.

	Level of V/NV Affiliation (A)			
Type of Interaction(B)	a	b	c	$\bar{X}$
NH/NH (1)	9.88d	8.71	7.29def	8.63
H/NH (2)	9.79e	9.17	10.08f	9.68
$\bar{X}$	9.83	8.94	8.69	$\bar{X}$ = 9.15

Source	Sum of Squares	df	Mean Square	F	η^2
Affiliation(A)	34.85	2	17.42	2.45	---
Type of Interaction(B)	40.11	1	40.11	5.64*	.04
A x B	56.01	2	28.00	3.94*	.05
Error	981.67	138	7.11		
Total	1112.64	143	7.78		

Note: Cell means subscripted with a common letter differ significantly.
*$p < .05$

The main effect for Factor A approached, but did not reach, statistical significance ($p < .10$). With that exception, the pattern of effects reported in Table 15 is highly consistent with prior findings in Table 14. Again, both main effects are qualified by the presence of a significant, disordinal A x B interaction. The pattern of means

predicted in T5 held consistently only at level 1 of Factor B. The main effect for Factor B was significant in the opposite direction T10 predicts. Attraction toward the non-handicapped source exceeded that for the handicapped type only at the high level of Factor A. In general, the handicapped source was more interpersonally attractive. Magnitude of this main effect was relatively small ($\eta^2 = .04$). The curves representing NH/NH versus H/NH dyads in these data are very similar to those plotted in Figure 7. Although attraction increased more rapidly in NH/NH dyads, again the rank order of simple effects was contrary to prediction in T15. Confirming prior results, cell means c_1 differed significantly in post-hoc comparisons with a_1, a_2 and c_2. Magnitude of the disordinal interaction was small ($\eta^2 = .05$).

Effects on Perceived Interpersonal Attraction

Theorems 4, 9 and 14 predict effects on the fourth dependent variable in order of theoretic import, perceived interpersonal attraction. Theorem 4 predicts a main effect from Factor A in the high-medium-low direction.

> T4: Interactants exposed to increasing levels of V/NV affiliation will report increasing levels of perceived interpersonal attraction from the message source.
>
> $$\bar{X}a > \bar{X}b > \bar{X}c$$

Theorem 9 predicts a main effect from Factor B such that interactions with the handicapped (H/NH will generate lower levels of perceived interpersonal attraction than the

nonhandicapped type (NH/NH).

> T9: Nonhandicapped persons will report more perceived interpersonal attraction (from the counterpart) when exposed to the same level of V/NV affiliation generated by a nonhandicapped, as opposed to a handicapped, source.

$$\bar{X}_1 > \bar{X}_2$$

Theorem 14 predicts an A x B ordinal interaction assuming the same rank order of effects predicted in T9. That is, H/NH treatments will consistently produce lower levels of perceived interpersonal attraction. In addition, T14 predicts that differences between the two dyadic types will increase toward the highest level of Factor A, i.e., the NH/NH curve will increase more rapidly.

> T14: As nonhandicapped persons are exposed to increasing levels of V/NV affiliation generated by handicapped versus nonhandicapped sources, their (NH) reported levels of perceived interpersonal attraction (from the counterpart) will increase more rapidly when the source is nonhandicapped.

$$(\bar{X}a_1 - \bar{X}a_2) > (\bar{X}b_1 - \bar{X}b_2) > (\bar{X}c_1 - \bar{X}c_2)$$

Results of the two-way ANOVA testing theorems 4, 9 and 14 are reported in Table 16. The perceived interpersonal attraction scale was unidimensional with a scoring range from 5 to 35. A significant main effect emerged for Factor A. Column marginals in Table 16 indicate that over all participants, increasing levels of perceived interpersonal attraction accompanied increasing affiliation. Theorem 4 was supported; however, its interpretation must be qualified in light of the significant disordinal interaction occurring

Table 16. Means and Analysis of Variance Summary for Effects of Verbal/Nonverbal Affiliation and Interaction Type on Perceived Interpersonal Attraction.

Type of Interaction(B)	Level of V/NV Affiliation (A) a	b	c	$\bar{X}$
NH/NH (1)	27.50a	26.17	22.75a	25.47
H/NH (2)	26.71	24.42	26.42	25.85
$\bar{X}$	27.10	25.29	24.58	$\bar{X}$ = 25.66

Source	Sum of Squares	df	Mean Square	F	η^2
Affiliation(A)	162.26	2	81.13	3.30*	.04
Type of Interaction(B)	5.06	1	5.06	.21	---
A x B	200.54	2	100.27	4.08*	.05
Error	3390.46	138	24.57		
Total	3758.33	143	26.28		

Note: Cell means subscripted with a common letter differ significantly.
*p < .05

at the low level of Factor A. The pattern predicted in T4 held consistently across three levels of Factor A for NH/NH interactions. This was the case in only two of three conditions (a_2 and b_2) representing H/NH interactions. Although the difference was nonsignificant, participants perceived more interpersonal attraction from the handicapped source at the low level (c_2), as compared to the medium level (b_2), of Factor A. The major contribution of variance

came from NH/NH interactions. However, only treatments a_1 and c_1 were significantly different among cell means. Magnitude of effects attributable to Factor A on perceived interpersonal attraction was relatively small ($\eta^2 = .04$).

These data do not support theorems 9 and 14. Row marginals in Table 16 suggest a trend contrary to the direction of main effects predicted for Factor B in T9. This conclusion is somewhat misleading due to the strong A x B interaction occurring at condition c of Factor A. Less interpersonal attraction was perceived from the handicapped source in two of three Factor A treatments ($a_2 < a_1$; b_2 b_1). Magnitude of the A x B disordinal interaction effect was small ($\eta^2 = .05$). These data are represented graphically in Figure 8.

Effects on Perceived State Anxiety

Theorems 3, 8 and 13 predict effects on the final dependent variable, perceived state anxiety. Theorem 3 predicts a main effect from Factor A in the familiar high-medium-low direction.

> T3: Interactants exposed to increasing levels of V/NV affiliation will report decreasing levels of perceived state anxiety.

$$\bar{X}a < \bar{X}b < \bar{X}c$$

Theorem 8 posits a main effect for Factor B such that H/NH interactions will generate higher levels of perceived state anxiety than the NH/NH type.

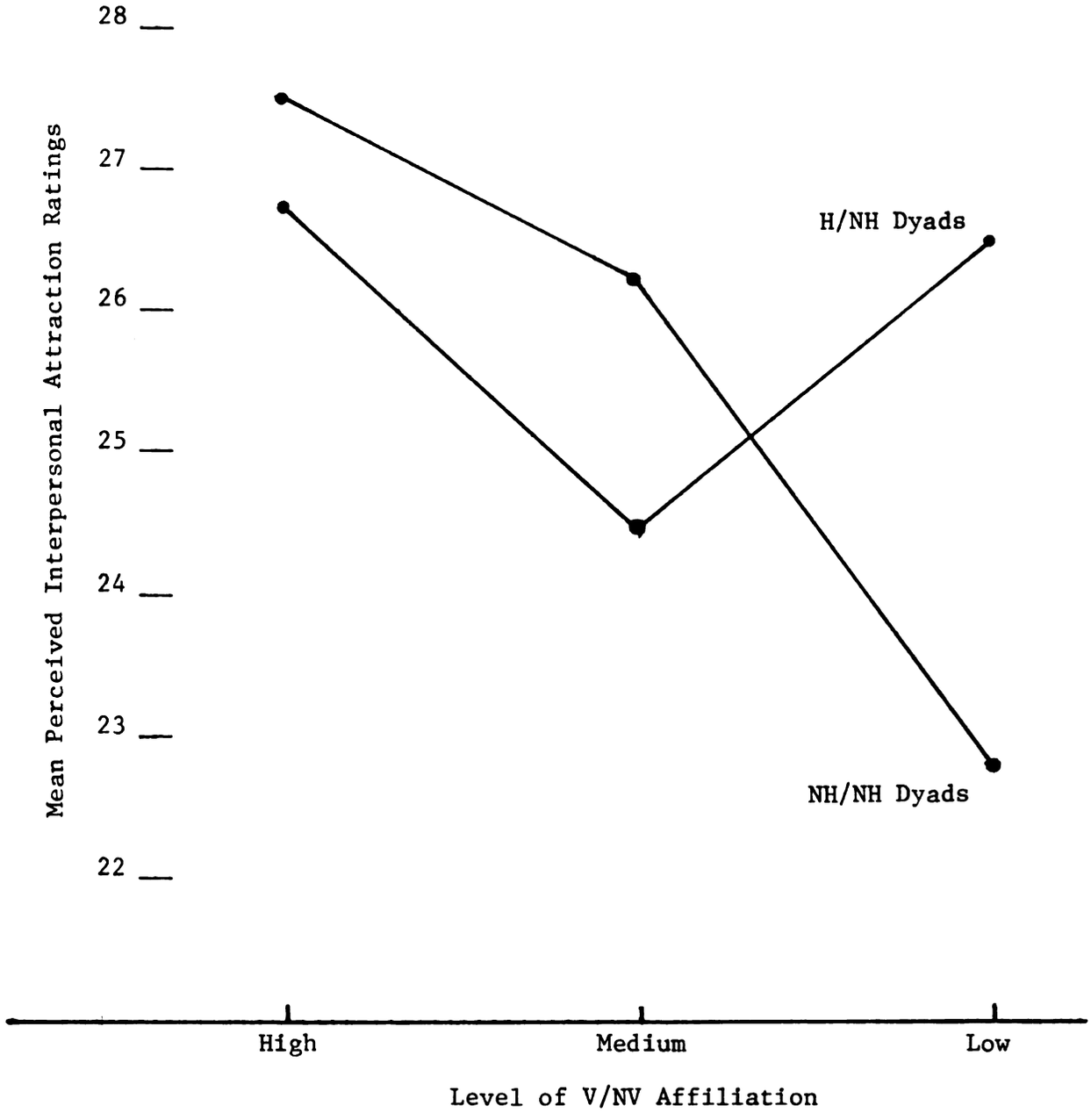

Figure 8. Graphic Representation of Perceived Interpersonal Attraction as a Function of Affiliation and Type of Interaction.

T8: Nonhandicapped persons will report less perceived state anxiety when exposed to the same level of V/NV affiliation generated by a nonhandicapped, as opposed to a handicapped, source.

$$\bar{X}_1 < \bar{X}_2$$

Theorem 13 predicts an A x B ordinal interaction that assumes the same rank order of simple effects hypothesized in T8. In addition, T13 predicts that differences between NH/NH and H/NH dyads will increase in the direction of Factor A, condition a (i.e., the NH/NH curve will decline more rapidly).

T13: As nonhandicapped persons are exposed to increasing levels of V/NV affiliation generated by handicapped versus nonhandicapped sources, their (NH) reported levels of perceived state anxiety will decrease more rapidly when the source is nonhandicapped.

$$(\bar{X}a_2 - \bar{X}a_1) > (\bar{X}b_2 - \bar{X}b_1) > (\bar{X}c_2 - \bar{X}c_1)$$

Factor analyses on the instrument used to measure perceived state anxiety yielded a two-factor solution. Hence, results of each ANOVA to follow represent a partial test of theorems 3, 8 and 13. Eight items comprised the first factor (cf. Table 8) identified as a positive dimension of perceived state anxiety. This factor had a scoring range from 8 to 32. Results of the two-way ANOVA used to analyze data collected via the first scale factor are reported in Table 16.

Neither T3 nor T8 was supported. However, the main effect for Factor A approached significance ($p < .10$) in

Table 17. Means and Analysis of Variance Summary for Effects of Verbal/Nonverbal Affiliation and Interaction Type on Perceived State Anxiety - Factor 1.

Type of Interaction(B)	Level of V/NV Affiliation (A) a	b	c	$\bar{X}$
NH/NH (1)	17.54	16.52a	20.50	18.21
H/NH (2)	17.17	20.83a	18.71	18.90
$\bar{X}$	17.35	18.72	19.60	$\bar{X}$ = 18.56

Source	Sum of Squares	df	Mean Square	F	η^2
Affiliation(A)	123.27	2	61.64	2.51**	---
Type of Interaction(B)	16.98	1	16.98	.69	---
A x B	241.56	2	120.78	4.92*	.06
Error	3365.32	137	24.56		
Total	3747.25	142	26.39		

Note: Cell means subscripted with a common letter differ significantly.
*p < .05
**p < .10

the direction T3 predicts as column marginals in Table 17 indicate. Participants generally reported less perceived state anxiety as V/NV affiliation increased. More specifically, in the presence of a significant A x B interaction, simple effects in Table 17 follow the pattern T3 predicts only at the high and low extremes of Factor A.

Row marginals in Table 17 show a trend in the direction T8 predicts. That is, the handicapped source was generally

perceived as somewhat more anxious than the nonhandicapped type. However, in this case the simple effects are clearly consistent with T8 only at the medium level of Factor A as a result of the A x B interaction.

These data do not support T13. Excepting the order of simple effects in condition b of Factor A, both the rank order of effects and the disordinal interaction are contrary to T13. Factor A, condition b, was the major source of variance; only b_1 and b_2 were significantly different as Figure 9 illustrates. Magnitude of the interaction effect was moderate ($\eta^2 = .06$).

In accord with prior factor-analytic results, six items comprised the second factor of the perceived anxiety scale (cf. Table 8). This factor, identified as the negative dimension of perceived state anxiety, had a scoring range from 6 to 24. Results of the two-way ANOVA used to analyze data obtained via this scale factor are reported in Table 18. Neither the main nor interaction effects were significant. Hence, theorems 3, 8 and 13 were not supported. Both column and row marginals are inconsistent with T3 and T8. In addition, a trend toward disordinal A x B interaction is evident due to the reverse order of simple effects in condition b of Factor A (i.e., $b_2 < b_1$). In lieu of significance, it is worth noting that both the rank order and directional pattern of simple effects in these data are quite similar to those obtained via Factor 1 of the

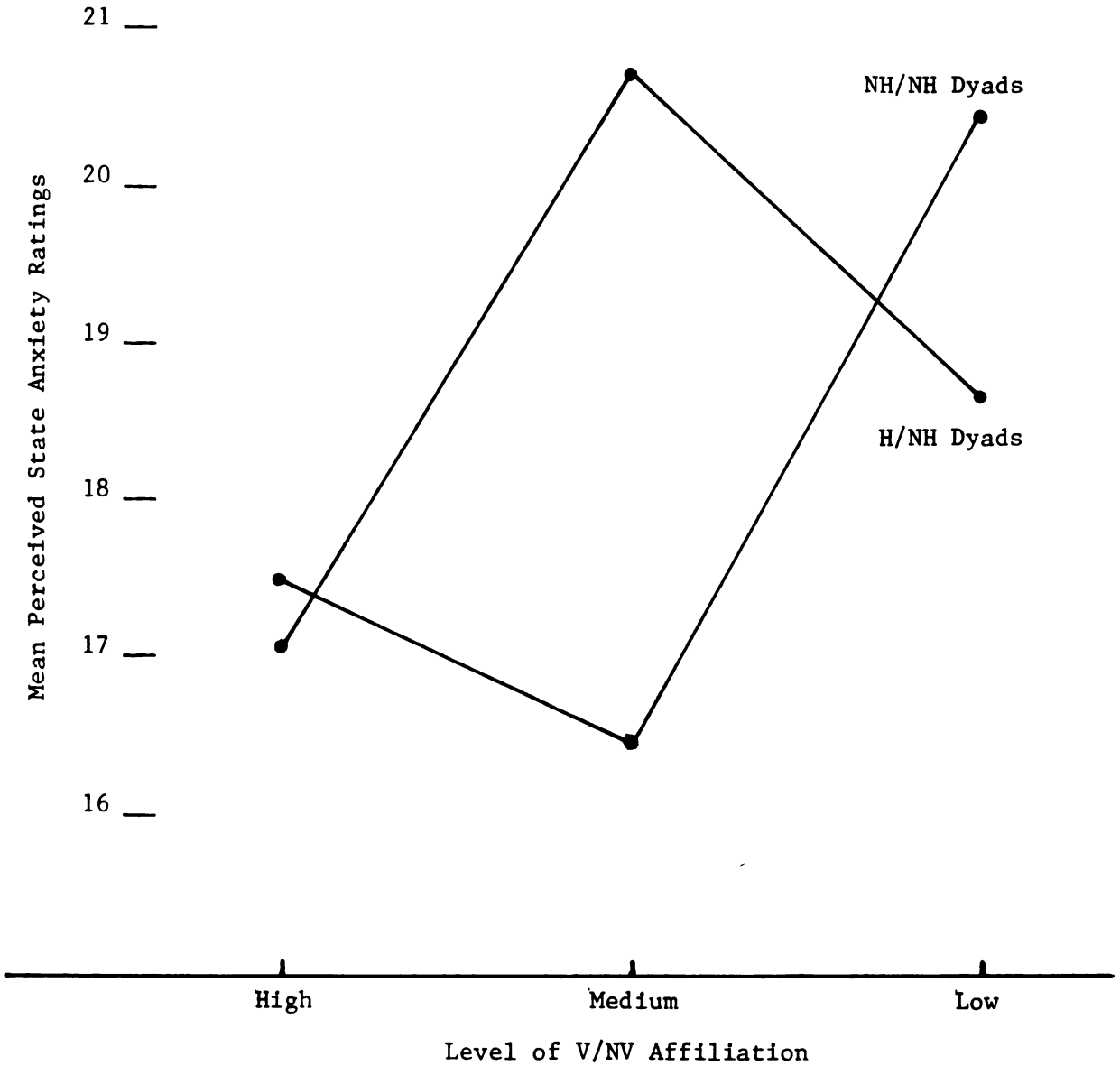

Figure 9. Graphic Representation of Perceived State Anxiety as a Function of Affiliation and Type of Interaction - Factor 1.

Table 18. Means and Analysis of Variance Summary for Effects of Verbal/Nonverbal Affiliation and Interaction Type on Perceived State Anxiety - Factor 2.

Type of Interaction(B)	Level of V/NV Affiliation a	b	c	$\bar{X}$
NH/NH (1)	9.71	9.21	9.71	9.54
H/NH (2)	9.09	10.30	8.38	9.24
$\bar{X}$	9.40	9.74	9.04	$\bar{X}$ = 9.39

Source	Sum of Squares	df	Mean Square	F	η^2
Affiliation(A)	11.64	2	5.82	.66	---
Type of Interaction(B)	3.06	1	3.06	.35	---
A x B	36.91	2	18.46	2.10	---
Error	1196.20	136	8.80		
Total	1247.92	141	8.85		

perceived state anxiety scale. These results are discussed in Chapter IV.

CHAPTER IV

DISCUSSION

This chapter attempts a plausible interpretation of significant results emerging from the study. Since the research was largely exploratory, theoretic explanations are offered for other potentially informative trends in these data. Ensuing discussion utilizes as much information from the previous chapter as reason and relevancy dictate. First, significant results in accord with hypothesized relations are reviewed. Conclusions are drawn relative to each dependent variable. Second, significant results contra hypothesized relations are examined. Third, nonsignificant trends of potential, heuristic value are considered. Fourth, attention is directed to salient limitations of the study. Finally, emergent directions for future research are reviewed. All results are discussed in the order of priority assigned each dependent variable in Chapter III.

Eleven of twenty seven tests previously reported produced statistically significant results. Four of fifteen theorems representing prior theory received full or partial support. Findings on two additional theorems approached, but failed to reach, the conventional (.05) level of significance. At face value, these results were disappointing. However, that assessment may be qualifiable on one account. Use of the videotape medium necessarily provided a

conservative test of the theory under study. That is, non-handicapped participants did not engage handicappers in live, face-to-face interaction. Consequently, some dilution of certain theoretically important nonverbal variables was inevitable and the magnitude of observed effects in general was expected to be small. Using criteria provided by Cohen (1969), the a priori estimate of statistical power for the overall F-test on main effects was, in this case, above the .80 convention. Actual post hoc power achievements are discussed below relative to certain nonsignificant trends in the data that suggest the possibility of more definitive effects via live interaction.

Hypothesized Relations

As theorem 1 predicts, clear evidence emerged in support of a positive association between V/NV affiliation and (proactive) communicative certainty. Regardless of dyadic type, participants reported greater confidence in their ability to predict the interviewee's behavior when s/he exhibited higher (more congruent) levels of the relevant verbal/nonverbal cues. This effect was somewhat less pronounced in H/NH dyads where none of the simple effects was significantly different. Moreover, while certainty ratings tended to decrease in the direction predicted, no appreciable difference occurred in H/NH dyads as a function of reducing the nonverbal versus the verbal message component. In NH/NH interactions both the verbal and the

nonverbal reductions produced significantly different effects than the congruent manipulation (high level) of V/NV affiliation. In addition, the nonverbal reduction produced a discernibly larger (absolute) decrease in certainty as expected. Dyadic differences of this type bear potential theoretic import and are discussed with other nonsignificant trends later.

At face value, effects on (proactive) communicative certainty observed in this study warrant the following conclusions with reference to dyadic interactions:

1. There is a positive, linear association between V/NV affiliation and communicative certainty regardless of interaction type.

2. Level of V/NV affiliation produced by a handicapped source does not atypically affect the level of communicative certainty experienced by a NH counterpart.

3. As independent factors, V/NV affiliation and type of dyad, do not interact to produce differential, conjoint effects on communicative certainty in H/NH interactions.

With reference to state anxiety, theorem 2 received partial support. Effects observed via the third factor of the tridimensional scale used to measure this variable clearly conform with the predicted pattern. Decreasing levels of state anxiety (negative type) consistently accompanied increasing levels of V/NV affiliation in both types of interaction. No significant differences relative to negative state anxiety were observed between the two dyadic types.

While observations via the second scale factor indicated a significant main effect from V/NV affiliation on state anxiety (normal type), column marginals representing this effect did not conform with the linear pattern predicted in theorem 2. Although NH participants reported higher absolute levels of state anxiety (positive type) when the message source was handicapped, neither independent variable produced a significant main effect on anxiety of this type.

Effects on state anxiety observed in this study warrant the following conclusions relative to dyadic interactions:

1. There is an inverse, linear association between V/NV affiliation and (negative) state anxiety regardless of interaction type.

2. Level of V/NV affiliation produced by a handicapped source does not atypically affect the level of (positive, normal, negative) state anxiety experienced by a NH counterpart.

3. As independent factors, V/NV affiliation and type of dyad, do not interact to produce differential, conjoint effects on state anxiety in H/NH interactions.

A relatively small main effect from Factor A on interpersonal attraction (via the McCroskey/McCain instrument) was found in support of theorem 5 ($\eta^2 = .04$). Column marginals in Table 14 indicate that over all participants, increasing levels of attraction accompanied increases in V/NV affiliation according to the linear pattern predicted. However, this general finding does not take complete account of the data. In this case, the main effect cannot

be adequately interpreted without reference to the present A x B disordinal interaction (Keppel, 1973).

Inspection of simple effects in Table 14 shows that the major contribution of variance attributable to Factor A came from NH/NH dyads. Treatment condition c_1 differed significantly from a_1, a_2 and c_2. No significant differences were observed among simple effects representing H/NH dyads. Moreover, the interaction effect in these data resulted primarily from an atypically large difference between the two dyadic types at the low extreme of Factor A. Hence, the predicted pattern of increasing interpersonal attraction held consistently only in NH/NH interactions. The interaction effect in these data, contra prediction, will be interpreted later.

While relevant manipulation data may shed light on present findings (as discussed below), observed effects of affiliation on interpersonal attraction do not consistently follow theorem 5 in linear fashion with respect to H/NH dyads. Results of analyses on the alternate set of attraction data collected via Byrne's IJS were remarkably similar to these data with one exception. The main effect for Factor A approached, but did not reach, statistical significance ($p < .10$).

In terms of absolute values, once again the pattern of means predicted in theorem 5 held consistently only at level 1 of Factor B. Both data sets produced significant

main effects for Factor B and disordinal A x B interactions, contrary to prediction in theorems 10 and 15. These results are discussed in the subsequent section.

In light of prior discussion, the following conclusions are drawn with reference to interpersonal attraction in dyadic contexts:

1. There is a positive, linear association between V/NV affiliation and interpersonal attraction in typical interactions engaging NH persons.

2. The foregoing linear association does not appear to hold in dyadic interactions engaging one handicapped person.

3. Level of V/NV affiliation produced by a handicapped source does not effect an atypically low level of interpersonal attraction from a NH counterpart.

4. As independent factors, V/NV affiliation and type of dyad, do not interact to produce proportionately lower (linear) changes in interpersonal attraction relative to H/NH interactions.

A main effect from Factor A on perceived interpersonal attraction was observed in support of theorem 4. Overall, participants reported increasing levels of perceived interpersonal attraction (from the counterpart) in the presence of increasing affiliation according to the linear pattern predicted. However, inspection of the simple means in Table 16 again shows that the major source of variance was NH/NH interaction. Only conditions a_1 and c_1 differed significantly via post hoc comparisons.

Moreover, the observed main effect must again be qualified at the low extreme of Factor A where an atypically large absolute difference (in reverse order) occurred between the two dyadic types. This difference resulted in a significant, disordinal A x B interaction, contrary to prediction in theorem 14. While no significant differences were observed among simple effects representing H/NH dyads, their absolute values follow a curvilinear pattern. Hence, the predicted linear pattern and direction of effects held consistently only in NH/NH interactions.

Optimally, these data suggest that the observed main effect can be expected to hold in H/NH dyads only at high/medium levels of V/NV affiliation. Again, relevant manipulation data may shed light on these findings as discussed later. Theorem 9 predicting a main effect from Factor B was not supported.

In sum, the following conclusions are drawn with reference to hypothesized relations involving perceived interpersonal attraction in dyad contexts:

1. There is a positive, linear association between V/NV affiliation and perceived interpersonal attraction in typical interactions engaging NH persons.

2. The foregoing linear association does not appear to hold in dyadic interactions engaging one handicapped person.

3. Level of V/NV affiliation produced by a handicapped source does not effect an atypically low level of perceived interpersonal attraction (as perceived) by a NH counterpart.

4. As independent factors, V/NV affiliation and type of dyad do not interact to produce proportionately lower (linear) changes in perceived interpersonal attraction relative to H/NH, versus NH/NH, interactions.

Of the five dependent variables observed in this study, evidence relative to effects on perceived state anxiety was least conclusive and interpretable on present theoretic grounds. Across all treatments, absolute decreases in perceived state anxiety (positive type) generally accompanied increases in V/NV affiliation as column marginals in Table 18 indicate. This pattern representing the predicted main effect from Factor A approached, but did not reach, statistical significance ($p < .10$). In addition, simple effects for both dyadic types were inconsistent, tending to reflect a curvilinear pattern.

Complicating interpretation, the NH source was perceived as least anxious, the H source most anxious, in the medium condition (b) of Factor A, under a reduction of the verbal message component (cf. Figure 9). Magnitude of this difference, reversing the order of observations in conditions a_1 versus a_2 and c_1 versus c_2, was sufficient to produce a significant, disordinal A x B interaction. Conditions b_1 and b_2 also produced the only significant difference among simple means in these data via post hoc analyses. Hence, relevant theorems 3, 8 and 13 were not confirmed.

Evidently, to the extent that affiliation and type of interaction may affect perceptions of state anxiety experienced by a counterpart, the relationships among these variables are more complex than the linear patterns present theory predicts. At face value, these data warrant the following conclusions with reference to hypothesized relations involving perceived state anxiety in dyadic contexts:

1. A positive, linear association does not obtain between V/NV affiliation and perceived state anxiety in either NH/NH or H/NH interactions.

2. Level of V/NV affiliation produced by a handicapped source does not atypically affect the level of state anxiety perceived by a NH counterpart--in consistent linear patterns.

3. As independent factors, V/NV affiliation and type of dyad do not interact to produce proportionately lower (linear) changes in perceived state anxiety relative to H/NH, versus NH/NH, interactions.

Significant Results Contra Prediction

Analyses reported in Chapter III revealed several statistically significant findings that oppose hypothesized relations deduced from prior theory. Surprisingly, both sets of data on interpersonal attraction produced a significant main effect for Factor B in the opposite direction theorem 10 predicts. Results obtained via two independent scales were remarkably consistent relative to this effect. Although magnitude of the effect was small (η^2 = .03 and .04), the H source was generally rated as more

interpersonally attractive than the NH source. However, inspection of Tables 14 and 15 indicates that a significant difference among simple effects representing the two dyadic types occurred only at the low extreme of Factor A. Magnitude of this difference was sufficiently large to produce the concomitant disordinal A x B interaction. In effect, the major source of variance accounting for both the significant main effect (Factor B) and the interaction was treatment A, c representing incongruent V/NV affiliative cues via a reduction in the nonverbal message component.

Ceteris paribus, the foregoing dyadic differences suggest two potentially important, theoretic possibilities to account for this finding. First, incongruent V/NV cues may have less negative impact on interpersonal attraction when exhibited by a handicapped source. Second, NV cues of this type may play a less dominant role in H/NH, as opposed to NH/NH, interactions. Theoretically, these differences may be explained in terms of differing sets of a priori expectations. That is, nonhandicapped persons may typically be conditioned, via past experience, to expect fewer nonverbal cues and, consequently, to tolerate lower levels of V/NV congruency from handicapped counterparts. In turn, these expectations may encourage the nonhandicapped to rely more consistently on verbal cues in H/NH versus NH/NH interactions.

This line of reasoning would account for dramatically different effects on attraction observed here (re: H/NH dyads) when affiliative cues were reduced in the nonverbal channel.

One less interesting explanation of these results deserves notice. Manipulation check data (Table 2) focusing on perceptions of the source's sociability are quite comparable to the attraction data in Tables 14 and 15. Plotted curves representing each dyadic type in these data sets are remarkably similar. Most conspicuous are significant differences among simple effects with the same rank order at the low extreme of Factor A (condition c) in all three cases. Hence, it is conceivable that the disturbance in these attraction data is a function of an ineffective manipulation at Factor A, condition c. Judgment on this issue is reserved in consideration of additional evidence.

Thus far, the discussion has not attempted a theoretic explanation to account for the significant, disordinal A x B interaction effect emerging from analyses on the perceived interpersonal attraction data. Although their post hoc comparison was nonsignificant, the absolute difference between simple means in conditions c_1 and c_2 (reversing the rank order of effects observed at A, a and b) accounted for the relevant interaction effect (cf. Figure 8).

In terms of absolute values, participants perceived more interpersonal attraction from the H, versus the NH, source primarily as a result of the Factor A manipulation at condition c. That is, under a reduction in nonverbal, as opposed to a reduction in verbal, affiliative cues. Again, strength of this difference resulted in a disordinal interaction quite comparable to that previously encountered (at the same location) in the manipulation data assessing sociability. In fact, plotted curves representing both dyadic types in these attraction data are virtually identical to corresponding curves obtained via manipulation check one. The rank orders of simple effects in these two data sets are also identical. On this account as previously suggested, the manipulation of Factor A at condition c is suspect.

In addition, it is also conceivable that the absence of supporting nonverbal cues exerts a differential effect on perceptions of interpersonal attraction in H/NH, as opposed to NH/NH, interactions. Indeed, both foregoing factors may have contributed to the present unexpected result.

A fourth significant interaction counter predicted effects on perceived state anxiety (positive type) remains to be explained. As previously observed, the NH source was perceived to be least anxious, the H source most anxious, in the moderate condition (b) of Factor A, i.e., under a

reduction of the verbal message component (cf. Figure 9). Magnitude of this difference produced the relevant, disordinal A x B interaction. Conditions b_1 and b_2 also produced the only significant post hoc difference among simple effects in these data. Hence, the radical difference observed between dyadic types at the moderate level of V/NV affiliation has potential theoretic import and cannot be entirely ignored.

By design, the moderate affiliation treatment combined a relatively normal number of affiliative nonverbal cues with an atypically low number of affiliative verbal cues. The H source was perceived to be least sociable (via manipulation check one) and most anxious in this condition versus other H/NH treatments. Perceptions of the NH source under a similar manipulation were significantly different in both instances. Ostensibly, these data indicate that messages composed of high nonverbal/low verbal, affiliative content are perceived and decoded quite differently by NH receivers depending on whether or not the source is physically handicapped.

As suggested previously, NH persons may expect H counterparts to be relatively inactive nonverbally and to compensate for minimal use of nonverbal cues by means of the verbal channel. If so, this expectation represents a reverse of the high nonverbal/low verbal combination intended via the manipulation under discussion. Theoretically,

it is also conceivable that handicapped use of the nonverbal channel which exceeds NH expectations may be perceived as a manifestation of tension and/or anxiety. Intuitively, the same phenomenon commonly occurs at a higher threshold of nonverbal activity in more typical NH/NH interactions.

In sum, the foregoing discussion is highly speculative, suggesting the need for further research in this area. On present data, it does provide on plausible explanation for the atypically high assessments of state anxiety awarded the H source under a moderate manipulation of V/NV affiliative cues, i.e., involving a reduction in the verbal channel.

Nonsignificant Trends

Technically, probability theory does not allow one to "bend" the meaning of statistical significance; nonsignificant findings are nonsignificant. However, given the exploratory nature and methodology of this study, certain nonsignificant trends in these data appear to inform present interpretation and may enlighten future research. Following examples are considered most salient.

Communicative certainty ratings in H/NH dyads tended to decrease in the direction predicted, yet no significant differences occurred as a function of reducing the NV versus the V message component. In NH/NH dyads, both the V and the NV reductions produced significantly different

effects than the congruent (high) level of affiliation. Moreover, higher absolute values of certainty were reported by participants exposed to the handicapped source in both incongruent treatments of Factor A. Stated differently, in the presence of either type of incongruency participants tended to be more certain of their ability to predict the H source's behavior. The largest difference (between the two sources) in favor of the H source occurred with a reduction in the number of NV cues exhibited (condition A, c).

As in the clearer case of interpersonal attraction, incongruency appears to have less impact on certainty and the NV channel (affiliative cues in particular or NV cues in general) may be less salient in H/NH interactions. Interestingly, the manipulation check (two) data focusing on perceptions of V/NV congruency are quite comparable to the certainty data in Table 10. Plotted curves representing each type of dyad in these data sets are remarkably similar, as are their rank orders of effects. Assuming that the manipulations (re: the two sources) were relatively consistent, V/NV cues exhibited by the H source were perceived as more congruent (than those exhibited by the NH source) at all three levels of V/NV affiliation. Once again, the largest difference in favor of the H source occurred at Factor A, condition c. That is, the absence of supporting NV cues had a considerably larger effect toward

reducing perceptions of V/NV congruency in NH/NH interactions. At the same time, differences in the congruency data attributed to the H source as a function of reducing the V versus NV component were negligible. (It should be noted that the manipulation check on V/NV congruency produced a significant main effect for both independent variables.)

Similarities between these two data sets lend additional support to the notion that perceptions of V/NV congruency and the role of nonverbal cues may differ in H/NH interactions, particularly with regard to the relationship between affiliation and communicative certainty. It could, of course, be argued that the manipulations of V/NV congruency per se were unsuccessful, i.e., that the V/NV messages exhibited by the H source were in fact more congruent than those generated by the NH source. Clear consistency in the congruency data militates against this possibility. The issue will be discussed in greater detail later under limitations of the study.

Present findings relative to state anxiety generally conflict with prior research on H/NH communication. If informative in no other sense, results obtained here provide evidence suggesting that state anxiety may not be a unidimensional variable as typically considered in previous research. Observed effects on three types of state anxiety were reported in Chapter III as a function of the

tridimensional scale used to measure this variable.

The first dimension reflected a positive affective state indexed by statements such as: "I felt secure"; "I felt at ease." According to scale design, low ratings on items of this nature were taken to represent high levels of state anxiety. Hence, this scale factor constitutes an indirect measure of state anxiety requiring an inferential "leap," i.e., from low security to high anxiety. On that account alone, results obtained via this scale factor were not surprising. Certain nonsignificant trends deserve notice.

First, in terms of absolute values, decreasing state anxiety (positive) accompanied increasing affiliation in five of six experimental conditions. Exception to this pattern occurred in H/NH dyads at Factor A, condition c, i.e., less positive anxiety was reported under the NV versus V reduction. The main effect in this case reached a .11 probability level. Statistical power of the test was above the .90 level.

Second, participants generally reported higher absolute levels of positive state anxiety when the message source was handicapped according to prediction. Two of three H/NH conditions conform with this pattern. The exception occurred at the low level of V/NV affiliation. There are at least two plausible explanations for this apparent disruption in the data. First, nonhandicapped

persons may operate under different nonverbal norms and expectations when interacting with the handicapped as suggested earlier. Second, the sole exception to the pattern in this case may be a function of an ineffective manipulation.

Comparison of these data with results of the first manipulation check suggests likelihood of the latter possibility. A significant disordinal, A x B interaction occurred at the low level of Factor A in the manipulation data, i.e., the handicapped source was rated significantly more sociable (affiliative) than the nonhandicapped source only in this condition. Assuming an inverse relation between sociability of the source and state anxiety of the receiver as the present theory predicts, the positive anxiety data conforms quite consistently with results of this manipulation check in an inverted pattern of effects. On that account, it seems most reasonable to attribute the exceptional simple effect in this case to the manipulation. The trend toward an A x B disordinal interaction ($p = .10$) in these anxiety data (at the same location) tends to confirm this conclusion.

The second dimension of state anxiety (normal type) represented a more direct measure, indexed by statements such as: "I was tense." While the data indicated a significant relationship between V/NV affiliation and normal state anxiety, the pattern of column means was curvilinear.

None of the simple effects was significantly different. The lowest levels of normal state anxiety clearly accompanied the highest level of affiliation in both H/NH and NH/NH dyads. Although more anxiety was reported with lower levels of affiliation, no discernible difference occurred in H/NH interactions as a function of reducing the NV versus the V message component. Again, although the trend was nonsignificant, participants generally reported more anxiety of this type when the message source was handicapped. In light of prior research, all effects on state anxiety observed in this study were generally less decisive than expected. Several factors which may have contributed to this outcome, in addition to the possible manipulation problem mentioned earlier, are discussed under limitations of the study.

One nonsignificant trend in the interpersonal attraction data is noteworthy. The predicted main effect from Factor A on attraction according to data collected via Byrne's IJS reached a probability below the .10 level. Actual power of the test, in this instance, exceeded the .80 convention. This scale was least reliable of instruments used in the study. Yet the magnitude, pattern and direction of effects obtained were highly consistent with data collected via the McCroskey/McCain instrument, excepting the prior nonsignificant influence. On this account, the IJS data offers additional evidence in support of

theorem 5 and the general interpretation of effects on interpersonal attraction provided earlier.

Limitations

The present study was as much an experiment in methodology as an investigation of real communication problems. Consequently, in retrospect, the list of limitations to which it was subject is more than typically legion. Some have already been implied. Many are more easily identified than eliminated. Subsequent review will focus on what appear to be major concerns.

First, the study presupposed a significant interdependent relationship between verbal/nonverbal elements in ordinary human communication. Hence, the attempt was made to control and observe effects of eight verbal/nonverbal independent variables simultaneously. The videotape medium was used in lieu of live interactions to standardize these manipualtions. Some dilution of key nonverbal variables such as eye contact and facial affect was inevitable. Moreover, procedures used to incorporate the videotaped stimulus into a bona fide employment interview were tantamount to one-way communication between the confederate interviewee and participants role-playing the position of interviewer. Under these conditions, several patterns, if not the magnitude, of effects found in this study were remarkably clear and heuristically useful, encouraging future research via two-way, live interactions.

Second, hindsight suggests two important limitations relative to experimental manipulations used in the study. Evidence cited previosuly indicated likelihood of a defective manipulation at the low extreme of Factor A. In addition, results of the study repeatedly show consistent patterns, yet low magnitude, of effects from Factor B. The fact that participants did not encounter the handicapped source directly in live interaction may account for this outcome to some extent. It is also possible that the H/NH manipulation was not sufficiently strong to project an effective image of the handicapped source via the videotape medium. Given their complexity, manipulations of both independent factors should have been pretested extensively to avoid the data interpretation problems which eventually developed in this case.

A third critical problem involved the appropriate number of verbal/nonverbal cues to be eliminated and/or retained in treatments representing the incongruent, medium and low levels of V/NV affiliation. In lieu of quantitative norms representing the typical affiliative behavior of an interviewee, a standardized employment interview was constructed to represent the high (normal) treatment condition with the assistance of a professional actor. The actor role-played an enthusiastic NH interviewee, generating what he perceived to be a "normal" number of the relevant verbal/nonverbal cues. The "normal" number of either

verbal or nonverbal cues was then reduced, somewhat arbitrarily, by 40-50% to construct the medium and low level treatments. In lieu of additional information, it is not certain that the verbal versus nonverbal reductions were either qualitatively comparable or quantitatively realistic relative to what typically occurs in the "real" world. This problem suggests the need for further descriptive research to establish quantitative guidelines in this area.

Fourth, these data were collected during a bona fide employment interview. The strategy was to increase respondents' motivation and establish the ecological validity of required tasks. Participants were being interviewed for summer work at a time when employment of this type was extremely difficult to obtain. Hence, the data was collected in a highly competitive context. Some evidence emerged to indicate that this feature may have introduced a response bias relative to certain dependent variables, particularly where the handicapped source was involved. For example, variance in the state anxiety data decreased systematically across the positive-normal-negative dimensions of this variable.

In addition, on the average participants consistently utilized decreasing proportions (.44, .20 and .05) of the available scoring range for each scale factor from the positive to negative dimension of state anxiety. This pattern suggests that respondents may have been reluctant

to report state anxiety (increasingly negative types, in particular) assuming that this information could jeopardize their opportunity for employment. A similar response bias may have contributed to consistently low variance in these data relative to the handicapped stimulus source.

Fifth, other noteworthy limitations involve the sample, design and measurement of dependent variables. The sample was relatively young ($\overline{X}$ = 22.5 years) and well educated ($\overline{X}$ = 15.7 years of formal education). Most participants were advanced university students. Theoretically, given the recent emphasis on rights and needs of handicappers, particularly in university contexts, a sample of this type may be more tolerant of H versus NH differences than an older sample with less education. Hence, generalizability of these results to the typical selection interviewer is questionable. In addition, level of education for female participants, married persons in general, and married males in particular were nonrandomly distributed across treatment conditions.

Production costs of videotaped stimuli and available resources dictated an abbreviation of the original 2 x 4 factorial design. Informative value of this study would likely have been enhanced with inclusion of an additional treatment at the lower extremity of Factor A, i.e., a simultaneous reduction of both verbal and nonverbal affiliative cues. Present results suggest the likelihood of

more definitive evidence had the V/NV affiliation continuum been extended in this manner.

Factor analyses on several dependent variables indicated the need for more precise, reliable measurement. The original communicative certainty scale was designed to include a retroactive dimension, related to decoding processes. These scale items failed to load adequately on one or more trial factors and were eventually eliminated. Thus, certainty data used in the study was exclusively of the proactive type. Given the central role of this variable, a fair test of the underlying theory will require more comprehensive, valid measures of communicative certainty.

Measurement of state anxiety and perceived state anxiety was less than optimal. Seven items were deleted from the 20-item state anxiety scale in order to reach an acceptable three-factor solution. This reduction amounted to a 35% loss of costly information. In turn, the remaining data were dispersed across the final three-factor solution. Not surprising, the magnitude of observed effects on state anxiety was relatively weak; their interpretation somewhat problematic. Similar limitations apply to the perceived state anxiety data obtained via a modified version of the same scale.

Directions For Future Research

Several general ideas for additional research were suggested in conjunction with prior limitations. Three specific queries appear to hold promise for extending our present knowledge of H/NH communication. First, focal point of the original research question was the employment interview. However, the underlying theory and subsequent research were necessarily general, applying more realistically to any initial encounter between handicapped/non-handicapped persons. I am convinced from present results that both independent variables and the five dependent variables observed here (with possible exception of perceived state anxiety) are relevant factors warranting additional study. The extent to which these variables alone (or in combination with relevant others) directly affect the all important decision-making process in an employment interview context involving the handicapped is not clear from this study. For example, it cannot be assumed automatically that variables such as interpersonal or social, as opposed to task, attraction significantly affect the ultimate selection process. Additional research focused more directly on this question would likely prove useful.

Second, certain trends in results of this study raised a seemingly important question regarding a priori expectations that may operate when NH persons engage the

handicapped in initial interaction. If in fact NH expectations differ, for example, relative to incongruent verbal/nonverbal messages generated by handicapped persons, strategies for developing more effective communication between these individual types will eventually require additional information in this area. Research examining the manner in which expectations regarding V/NV congruency alter NH assessments of the handicapper's source credibility should be particularly useful re: the employment interview.

Finally, evidence from this study relative to the role of nonverbal communication in H/NH interactions raised, perhaps, more questions than it answered. Similarities and differences regarding the function of nonverbal cues in H/NH versus NH/NH interactions are by no means clear. Knowledge of the relative import of variables such as eye contact, facial affects, head-nods and larger body movements should be extremely helpful to the handicapper. More specifically, the extent to which these variables (and/or their verbal counterparts) can be used as substitutes to compensate for a particular physical disability would be invaluable information. Advancements toward more effective communication between handicapped/nonhandicapped persons await in depth research, particularly on the nonverbal channel and intricacies of its relationship with concomitant verbal cues.

APPENDIX A

STANDARDIZED EMPLOYMENT INTERVIEW

APPENDIX A

STANDARDIZED EMPLOYMENT INTERVIEW

Treatment Condition: Verbal Affiliation (V-Aff)
Nonverbal Affiliation (NV-Aff)

Symbol Key*

Nonverbal cues:

 = direct eye contact

 = diverted eye gaze

 = head nodding

 = hand/arm gesture

 = definite smile

Verbal cues:

D = declarative statement

PC = positive verbal content

VR = positive verbal reinforcer

PQ = person-oriented question

*All nonverbal symbols inserted in the following text refer to behaviors being exhibited by the confederate (C). Nonverbals held constant during a given speech by the surrogate subject (S) are inserted at the beginning of each utterance. Intermittent behaviors are given their approximate location during an utterance by either interactant. A pleasant facial expression is maintained by C throughout the interaction representing this experimental condition.

A. INTRODUCTION

1. S: Spontaneous greeting

2. C: How'd you do!

   I'm Tom Holtrop.

3. S: Doug Milton, here.

   Glad to meet you, Tom.

4. C: My pleasure.

5. S: Have a seat . . . make yourself comfortable.

6. C: Thank you.

B. STRUCTURING THE INTERVIEW

1. S: (O O) We appreciate your interest in our firm, Mr. Holtrop, and the opportunity to talk with you about employment.
   (, ) I'm the coordinator for a team of about 8 persons doing applied research--mostly in business and industrial settings. Basically, we're looking for someone with a behavioral bent--to help collect and code data.
   (VR, ) But, before we get too far down stream, I'd like to give you some idea of what to expect here, what we hope to accomplish, and so on.

2. C: (PC) Great! (D) I'd appreciate that.

3. S: (O O) Let me say, first off, this isn't a "Salt Talk" () so I hope we can be somewhat informal. (VR, )
   The basic philosophy of our firm, Tom, is that "people don't live in order to work" as our middle class work ethic suggests. We

think they "work in order to live." ( , )

So, we try to approach personnel with less emphasis on the o'le "how much can you do for us" routine. ()

4. C: (PC)(D)That's refreshing (● ●);(PC)(D)()makes sense to me.

5. S: (O O) Obviously, we'll be looking at your training and experience profile, et cetera () But, quite frankly, Tom, at this point we're interested in a little broader picture, e.g., your personal perspective, reactions to other jobs, your ideas, () some assessment of your own capabilities and how to maximize their use. In a nutshell, we'd like to know "where you're at" as well as where you've been. Uh . . . I see you majored in Sociology. How'd you happen to decide on that area? ()

C. BACKGROUND/ACADEMIC INTERESTS

6. C: (PC)(D) Good question . . . (D) I've asked that () myself a couple o' times. () (D) As I look back (● ●), there were several reasons. (D) Number one, ( ) I had an unusually stimulating instructor in my first Soc course at Penn State. (D) We all have our role models, you know. (D) Worked like () Hades for him (O O). (D) That helped "turn me on"! (D) But probably the turbulent times had more to do with it. (D) I was an undergrad when King an' Kennedy were assassinated . . . , (D) th' () riots near my home in L.A., peacemakers and protests . . . (D) th' campus was a caldron, of course. (D) So, studying social stratification an' race relations seemed

( , ) like the only relevant thing in the world.

7. S: (O O) Know what you mean--had our problems in Detroit too, you recall. (VR, ) By the way, I'm here to field your questions too--people are sometimes better known for their questions than for their answers. () This is a two-way street, so don't hesitate to check us out. (VR, ) Anything in particular on your mind at this point?

8. C: (PC)(D) Appreciate that . . .(D) uh (● ●) yes, . . . couple o' things. (D) I'm fairly clear on the job description, (D) but I () do think its important to know as much as possible beforehand about the people you'll work with . . . ()

9. S: (O O) Right!

10. C: (● ●) (PQ) I'd be interested in () your professional background, (PQ) your own expectations on the job, style of management, an' so on?

11. S: (O O) Turn about's fair play, huh? ( ,) I spent four years in the service after high school--working mostly in naval hospitals as a pharmacist's mate. () At the ripe o'le age of 26, I went back to school full time--Wayne State in Detroit--majored in Psychology. () Did my Masters at Ohio State in Industrial Psych. Then, GM hired me fresh out of school. But, that was essentially a consulting job, I'm more into research on managerial potential and performance. (VR, ) So, I came to SRA about six months ago.

D. SUBSTANTIVE ISSUES

12. C: (PC)(D)Interesting . . . sounds like you've been around. (● ●) Uh . . . as a matter of personal curiosity . . . (D) this (☺) is gonna sound like a Carter summit conference . . .

13. S: (O O) That's okay--go ahead!

14. C: (PQ) With your (👍) background, I was just wondering what (● ●) you see as the number one problem or challenge in business an' industry today?

15. S: (O O) That's a "biggee"; course it depends on what part 'o the jungle you're coming from. (VR, ⌐) We're all preoccupied with energy and inflation right now. But, a major problem, as I see it, is the misuse or waste of human energy and resources. (⌐) There's a tremendous amount of underutilized talent and skill in most organizations I've studied. (VR, ⌐)

16. C: (PC)(D)That's perceptive ...(PC)(D)couldn't agree more.(● ●) (PQ) What's the cause, (☺) training, supervision or . . . ?

17. S: (O O) Well, causes are hard to come by, as you know. (VR, ⌐) I don't think its generally true to say that managers just don't care. It's more the system as a whole. Corporate structures are so powerful and rigid they simply don't allow the individual to participate in the production process--in innovative ways. (VR, ⌐) For example . . . better yet maybe I can illustrate the point from your own experience--if you'll elaborate on two or three of the jobs you've listed, what you're responsibilities were (VR, ⌐), how you really felt about the job, <u>et cetera</u>.

E. PREVIOUS EXPERIENCE/PERSPECTIVES

18. C: (PC)(D)Sure, be glad to . . . (● ●)
(D) Fisher Body was a summer job--(D) drove a fork lift carting () quarter panels to assembly. (○ ○) (D) It was a fairly responsible position because of safety regulations (● ●) (D) but like driving a car, it becomes habitual. (D) You do it without () thinking, (D) so it gets pretty monotonous!

19. S: (○ ○) Exactly--if you can do it without thinking, it's a bore. How 'about the office job? ()

20. C: (● ●) (D) That was part-time during school () in the registrar's office here at MSU . . . (D) filing student transcripts an' records. (D) Somebody has t' do it, (D) but it doesn't take a lot o' "smarts" ( , ) to put a piece o' paper in the right slot.

21. S: (○ ○) Got it!

22. C: (● ●) (D) The best job I've had was with the city o' Saginaw. (D) . . . a pilot project placing juveniles in foster homes. (D) The idea was to improve () long term results by screening potential parents psychologically.

23. S: (○ ○) You say "your best job." Why did that particular job "turn you on"? ( )

24. C: (● ●) (D) Well, for one thing it tied right () in with my academic training. (D) Number two, . . . felt like I was doing something worthwhile. (D) The final outcome was important because () (D) I had something to do with it.

25. S: (O O) Precisely, that's the point! We did an efficiency study recently for a GM plant in Georgia. And, the only major problem was 400 hourly workers--dissatisfied because they had no responsibility () for planning their work, quality control, costs, absenteeism (VR). They had to restructure . . . so that people with the capability could function in a wider range of activity. What type of supervision did you have in Saginaw? ()

26. C: (PC)(D) Was hoping you'd ask ( , ● ●) (D) It was quite loose () 'an unstructured, but not laissez-faire. (D) We were trained on procedures,(D)what had to be done, (D) an' given a long range goal, (O O) (D) but we () had to organize the work ourselves (D) an' get it done.(● ●)

27. S: (O O) What were the advantages of that setup? ()

28. C: (D) Made the work alot more challenging. (● ●) (D) We were gathering several different types of "info" on each family, (D) so we () never (O O) knew how a given case would turn out until all the data was analyzed. (D) Once I came back Friday evening to "wrap up" an interesting case. (D) An' I was so(● ●) anxious to get the results, (D) th' sun ( , ) came up Saturday morning before I realized it.

29. S: (O O) That says it all! How 'bout drawbacks? Any disadvantages to loose supervision () as you see it?

30. C: Oh, sure! (D) "Nobody's perfect" () as V. W. says. (● ●) (D) Think the research indicates that some people are more

productive--(D) apparently they feel () more secure with closer surveillance. (D) Others need regular benchmarks from the brass. (O O) (D) It is difficult to know how you're () doing if you don't get regular feedback. (D) I'd be interested in your view on a related issue. (PQ) To what, extent (● ●) do you feel subordinates should use their own judgment to () solve problems?

31. S: (O O) I think they should be free to function with maximum autonomy--as adults. (VR, ) Not that everybody can do his own thing--that's chaos. () But, in private life, the average individual is capable of exercising a good deal of discretion. They make responsible judgments on financial matters, education investments et cetera. (VR, ) Then they come to work an' some manager makes all the critical decisions for them. They're frustrated because they're expected to behave like imbeciles on the job (VR,  , )

32. C: (PC)(D)Your approach is quite employee-oriented, (PC)(D) which I appreciate! (PQ) But, (● ●) what about performance? (D) Employees do have to produce () for a company to stay in business.

33. S: (O O) Sure do! . . . Productions the "name of th' game" if we want to survive. (VR, ) But, you see, I don't believe people are basically lazy by nature. They work damn hard for things they really want (VR, ). As McGregor says, leadership in an organization has to create conditions so that individuals can achieve their own goals best by directing effort toward the success of the enterprise, e.g., if SRA can give you

the opportunity to maximize your own long-range objectives (VR, ), I believe you'll produce more than enough to satisfy us!

34. C: (PC)(D)Think you're right! () But (● ●) . . . (D) suppose an employee wasn't producing up to your expectations. (O O) (PQ) How would () ya try to motivate him?(● ●)

35. S: (O O) I'd try to find out what's missing for that person in that particular job. (VR, ) Could be more money, but my theory is that "man doesn't live by bread alone." () Usually there's some intrinsic reward missing--a sense of accomplishment, control over one's own destiny, or self-realization. (VR, ) If the company can provide that, the work will come naturally in most cases. Why did <u>you</u> work so hard in Saginaw?

36. C: (PC)(D)Know exactly () what ya' mean. (● ●) (D) Wasn't it Herzberg who said (D) we're motivated more by things like personal satisfaction, achievement, a sense of worth an' responsibility. (O O) (D) In my () case, it was doing something worthwhile an' () (D) doing it fairly well.(● ●)

37. S: (O O) Let me ask a similar question from a slightly different perspective. (VR, ) This may be "off the wall," . . . but if you were director of a group like mine--where some subordinates have expertise you may not have ()--would you focus on keeping up with technical decisions? Or would you be inclined to concentrate on just coordinating their activity? ( ,)

38. C: (● ●) (PC)(D) Interesting question! (D) Let's put it this way--(D) I don't think (○ ○ , ) you could manage a professional football team if you've never played th' game, () okay! (D) Ya' need some experience n' expertise ()--even to coordinate. (D) But a manager can't play th' game () for his players. (D) I'd say a good coach relies as much (● ●) as possible on the know-how of those (D) who are out where the "rubber hits the road." (D) Think I'd focus on the larger game plan. ()

39. S: (○ ○) That's well said. Like your analogy. ( , VR) You sound like pretty fair manager material. There is one other question I meant to ask. ( , VR) How's your health--any problems we should be aware of . . . ? (● ●)

40. C: (D) Nothing ya' () can't see! (D) I don't jog, (D) but I get () around pretty well. (D) No, ah'm healthy as a bear in a beehive. ()

F. CLOSURE

41. S: (○ ○) Good, Tom, I'm satisfied at this point. Anything else you'd like to discuss? (● ●)

42. C: (PC)(D) No, this has been most () informative. (D) That pretty well covers it (D) as far as I'm concerned.

43. S: (○ ○) We still have our homework to do, of course, () but we're impressed at this point. I hope you'll give us serious consideration. ()

42. C: (PC)(D)Certainly will! () (PC)(D) Appreciate your time.( , handshake)

43. S: (O O) Thanks for coming in . . . we'll be in touch.( , VR)

44. C: (PC)(D)Thank you ! ()

APPENDIX B

SRA Employment Application

SRA Employment Interview Questionnaire

Part I

Part II

APPENDIX B

SRA
Employment Application

NAME:_____

ADDRESS:_____
(Street) (City) (State) (Zip Code)

LOCAL PHONE NUMBER: Area Code____ Number_____

*Marital Status: ____Married ____Single ____Widowed ____Divorced

Veteran of the Military Service: ____yes ____no

Education: Please indicate the number of years of formal education you have received including elementary school, high school, and college. ____years

*Age: ____years of age *Sex: ____Male ____Female

Social Security Number:_____

Employment: Please provide the following information concerning your most recent or current employment.

_____
(Name of Firm)

_____
(Name of Immediate Supervisor)

_____
(Address of Firm)

Have you ever been convicted of a felony? ____yes ____no

Please provide two references, their addresses, and current telephone numbers if possible:

Name:_____

Address:_____

Telephone Number:_____

Name:_____

Address:_____

Telephone Number:_____

(*This information is being solicited for EOE purposes.)

SRA EMPLOYMENT INTERVIEW
QUESTIONNAIRE

PART I

SRA EMPLOYMENT INTERVIEW
QUESTIONNAIRE

PART I

Name: _____

Social Security No. _____

GENERAL INSTRUCTIONS

Some individuals are more aware of their own feelings, attitudes, and internal reactions than are others. Some people are able to read and interpret the reactions of another person more accurately than are others. The following questionnaire has been carefully designed to tell us how well you are able to identify and accurately report your own initial reactions to unfamiliar persons. It will also measure your ability to tell how unfamiliar persons have reacted to you.

There are no right or wrong, good or bad answers to these questions. There are no hidden meanings. We are not interested in what specific reactions you had. Rather, our work requires persons who are well "in touch" with their own evaluations of others and are willing to report them honestly and accurately. You are most likely to qualify for one of our positions if you do not attempt to provide answers that seem more socially acceptable or "expected" by an employer than your actual reactions.

If additional information is required, physical measures will be taken during a live interview with Mr. Holtrop. These measures will determine more clearly what internal reactions you actually experienced.

Please be assured that your responses will be held in strictest confidence.

In an interview situation, some persons disclose important information about themselves quickly and easily. Their personal characteristics and typical behavior patterns can often be predicted quite confidently by the interviewer from first impressions. On other occasions, the person interviewed may be more reserved so that further time and effort is necessary to obtain an adequate evaluation. Relying on information from your interview, the following questions ask you to express how much confidence you would have in making certain evaluations and predictions about the person you interviewed. You may use any evidence obtained during the interview. Place a check (✓) in the blank beside the best response from your point of view. Please read each question carefully and note that the response alternatives sometimes appear in reverse order.

1. How certain are you of your general ability to predict the way this person is likely to behave in different situations?

   _____ very certain
   _____ certain
   _____ somewhat certain
   _____ somewhat uncertain
   _____ uncertain
   _____ very uncertain

2. How certain are you that you understood or interpreted this person correctly when he/she spoke to you?

   _____ very uncertain
   _____ uncertain
   _____ somewhat uncertain
   _____ somewhat certain
   _____ certain
   _____ very certain

3. How certain are you that you know or can predict some of the moral and social values this person holds?

   _____ very certain
   _____ certain
   _____ somewhat certain
   _____ somewhat uncertain
   _____ uncertain
   _____ very uncertain

4. How certain are you that you know whether or not this person liked you?

_____ very uncertain
_____ uncertain
_____ somewhat uncertain
_____ somewhat certain
_____ certain
_____ very certain

5. How certain are you that you know or can predict the basic attitudes that guide this person's behavior?

_____ very certain
_____ certain
_____ somewhat certain
_____ somewhat uncertain
_____ uncertain
_____ very uncertain

6. During an initial interview, some people respond the way we expect them to respond; others are quite unpredictable. How certain are you that this person will generally respond to your conversation in the way you expect?

_____ very uncertain
_____ uncertain
_____ somewhat uncertain
_____ somewhat certain
_____ certain
_____ very certain

7. How certain are you that you know or can predict how this person feels about himself/herself?

_____ very certain
_____ certain
_____ somewhat certain
_____ somewhat uncertain
_____ uncertain
_____ very uncertain

8. How certain are you about whether or not this person is highly motivated toward his/her work?

_____ very uncertain
_____ uncertain
_____ somewhat uncertain
_____ somewhat certain
_____ certain
_____ very certain

9. How certain are you that this person is genuinely concerned about whether or not others are at ease in his/her presence?

_____ very certain
_____ certain
_____ somewhat certain
_____ somewhat uncertain
_____ uncertain
_____ very uncertain

10. How certain are you of the way he/she would likely treat you as a person if you were working in the same office?

_____ very uncertain
_____ uncertain
_____ somewhat uncertain
_____ somewhat certain
_____ certain
_____ very certain

A number of statements which people have used to describe themselves are given below. Read each statement. Then check (✓) the response below which indicates how you felt during the interview. Do not spend too much time on any one item. Give the answer which seems to best describe your feelings while you were with the other person. Please note that the response alternatives sometimes appear in reverse order.

11. I felt calm.

_____ not at all
_____ somewhat
_____ moderately so
_____ very much so

12. I felt secure.

_____ very much so
_____ moderately so
_____ somewhat
_____ not at all

13. I was tense.
_____ not at all
_____ somewhat
_____ moderately so
_____ very much so

14. I was regretful.
_____ very much so
_____ moderately so
_____ somewhat
_____ not at all

15. I felt at ease.
_____ not at all
_____ somewhat
_____ moderately so
_____ very much so

16. I felt upset.
_____ very much so
_____ moderately so
_____ somewhat
_____ not at all

17. I was worried over possible misfortunes.
_____ not at all
_____ somewhat
_____ moderately so
_____ very much so

18. I felt rested.
_____ very much so
_____ moderately so
_____ somewhat
_____ not at all

19. I felt anxious.
_____ not at all
_____ somewhat
_____ moderately so
_____ very much so

20. I felt comfortable.
_____ very much so
_____ moderately so
_____ somewhat
_____ not at all

21. I felt self-confident.
_____ not at all
_____ somewhat
_____ moderately so
_____ very much so

22. I felt nervous.
_____ very much so
_____ moderately so
_____ somewhat
_____ not at all

23. I was jittery.
_____ not at all
_____ somewhat
_____ moderately so
_____ very much so

24. I felt "high strung."
_____ very much so
_____ moderately so
_____ somewhat
_____ not at all

25. I was relaxed.
_____ very much so
_____ moderately so
_____ somewhat
_____ not at all

26. I felt content.
_____ not at all
_____ somewhat
_____ moderately so
_____ very much so

27. I was worried.

_____ very much so
_____ moderately so
_____ somewhat
_____ not at all

28. I felt over-excited and "rattled."

_____ not at all
_____ somewhat
_____ moderately so
_____ very much so

29. I felt joyful.

_____ very much so
_____ moderately so
_____ somewhat
_____ not at all

30. I felt pleasant.

_____ not at all
_____ somewhat
_____ moderately so
_____ very much so

Below are several items asking you to evaluate the person you interviewed. Please read each item carefully. Then place a check (✓) in the blank beside one response that best describes your assessment of this person. Note that the response alternatives sometimes appear in reverse order.

31. How intelligent do you think he/she is?

_____ I believe that this person is very much above average in intelligence.
_____ I believe that this person is above average in intelligence.
_____ I believe that this person is slightly above average in intelligence.
_____ I believe that this person is average in intelligence.
_____ I believe that this person is slightly below average in intelligence.
_____ I believe that this person is below average in intelligence.
_____ I believe that this person is very much below average in intelligence.

32. How well do you think you would like this person if you became better acquainted?

_____ I feel that I would probably dislike this person very much.
_____ I feel that I would probably dislike this person.
_____ I feel that I would probably dislike this person to a slight degree.
_____ I feel that I would probably neither particularly like nor particularly dislike this person.
_____ I feel that I would probably like this person to a slight degree.
_____ I feel that I would probably like this person.
_____ I feel that I would probably like this person very much.

33. How difficult do you think it would be to work with him/her?

_____ I believe it would be extremely easy to work with this person.

_____ I believe it would be easy to work with this person.

_____ I believe it would be easy to work with this person to a slight degree.

_____ I believe it would be neither particularly difficult nor particularly easy to work with this person.

_____ I believe it would be difficult to work with this person to a slight degree.

_____ I believe it would be difficult to work with this person.

_____ I believe it would be extremely difficult to work with this person.

34. How well adjusted do you think he/she is?

_____ I believe that this person is extremely well adjusted.

_____ I believe that this person is well adjusted.

_____ I believe that this person is well adjusted to a slight degree.

_____ I believe that this person is neither particularly maladjusted nor particularly well adjusted.

_____ I believe that this person is maladjusted to a slight degree.

_____ I believe that this person is maladjusted.

_____ I believe that this person is extremely maladjusted.

35. I think he/she could be a friend of mine.

_____ strongly agree

_____ agree

_____ somewhat agree

_____ undecided

_____ somewhat disagree

_____ disagree

_____ strongly disagree

36. It would be difficult to meet and talk with him/her again.

_____ strongly disagree

_____ disagree

_____ somewhat disagree

_____ undecided

_____ somewhat agree

_____ agree

_____ strongly agree

37. We could never establish a personal friendship with each other.

_____ strongly agree
_____ agree
_____ somewhat agree
_____ undecided
_____ somewhat disagree
_____ disagree
_____ strongly disagree

38. I would enjoy having a friendly chat with him/her again.

_____ strongly disagree
_____ disagree
_____ somewhat disagree
_____ undecided
_____ somewhat agree
_____ agree
_____ strongly agree

39. He/she just wouldn't fit into my circle of friends.

_____ strongly agree
_____ agree
_____ somewhat agree
_____ undecided
_____ somewhat disagree
_____ disagree
_____ strongly disagree

A number of statements which people have used to describe others are given below. Read each statement. Then check (✓) the response below which indicates how you think the other person felt during the interview. Do not spend too much time on any one item. Give the answer which seems to best describe his/her feelings while you were with the other person. Please note that the response alternatives sometimes appear in reverse order.

40. He/she felt pleasant.

_____ not at all
_____ somewhat
_____ moderately so
_____ very much so

41. He/she felt joyful.

_____ very much so
_____ moderately so
_____ somewhat
_____ not at all

42. He/she felt over-excited and "rattled."

_____ not at all
_____ somewhat
_____ moderately so
_____ very much so

43. He/she was worried.

_____ very much so
_____ moderately so
_____ somewhat
_____ not at all

44. He/she felt content.

_____ very much so
_____ moderately so
_____ somewhat
_____ not at all

45. He/she was relaxed.

_____ not at all
_____ somewhat
_____ moderately so
_____ very much so

46. He/she felt "high strung."

_____ very much so
_____ moderately so
_____ somewhat
_____ not at all

47. He/she was jittery.

_____ not at all
_____ somewhat
_____ moderately so
_____ very much so

48. He/she felt nervous.

_____ very much so
_____ moderately so
_____ somewhat
_____ not at all

49. He/she felt self-confident.

_____ not at all
_____ somewhat
_____ moderately so
_____ very much so

50. He/she felt comfortable.

_____ very much so
_____ moderately so
_____ somewhat
_____ not at all

51. He/she felt anxious.

_____ not at all
_____ somewhat
_____ moderately so
_____ very much so

52. He/she felt rested.

_____ very much so
_____ moderately so
_____ somewhat
_____ not at all

53. He/she felt calm.

_____ not at all
_____ somewhat
_____ moderately so
_____ very much so

54. He/she was worried over possible misfortunes.

_____ not at all
_____ somewhat
_____ moderately so
_____ very much so

55. He/she felt upset.

_____ very much so
_____ moderately so
_____ somewhat
_____ not at all

56. He/she felt at ease.

_____ not at all
_____ somewhat
_____ moderately so
_____ very much so

57. He/she was regretful.

_____ very much so
_____ moderately so
_____ somewhat
_____ not at all

58. He/she was tense.

_____ not at all
_____ somewhat
_____ moderately so
_____ very much so

59. He/she felt secure.

_____ very much so
_____ moderately so
_____ somewhat
_____ not at all

The following items are designed to tell us how well you were able to project yourself into the interviewer's role. In addition to an accurate report of your own reactions to the other person, it is extremely important during an interview to know how he/she reacted to you. Again, assume that you actually conducted the videotaped interview so that Mr. Holtrop's verbal and nonverbal responses were actually addressed directly to you.

Then check (✓) one answer that best describes what you believe his assessment was of you in the role of the interviewer. Note that the response alternatives sometimes appear in reverse order.

60. How well adjusted does he believe you are?

_____ He believes that I am extremely well adjusted.
_____ He believes that I am well adjusted.
_____ He believes that I am well adjusted to a slight degree.
_____ He believes that I am neither particularly maladjusted nor particularly well adjusted.
_____ He believes that I am maladjusted to a slight degree.
_____ He believes that I am maladjusted.
_____ He believes that I am extremely maladjusted.

61. How well do you think this person would like you if you became better acquainted?

_____ I feel that he would probably dislike me very much.
_____ I feel that he would probably dislike me.
_____ I feel that he would probably dislike me to a slight degree.
_____ I feel that he would probably neither particularly like nor particularly dislike me.
_____ I feel that he would probably like me to a slight degree.
_____ I feel that he would probably like me.
_____ I feel that he would probably like me very much.

62. How difficult do you think this person believes it would be to work with you?

_____ He believes it would be extremely easy to work with me.

_____ He believes it would be easy to work with me.

_____ He believes it would be easy to work with me to a slight degree.

_____ He believes it would be neither particularly difficult nor particularly easy to work with me.

_____ He believes it would be difficult to work with me to a slight degree.

_____ He believes it would be difficult to work with me.

_____ He believes it would be extremely difficult to work with me.

63. How intelligent do you think this person believes you are?

_____ He believes that I am very much below average in intelligence.

_____ He believes that I am below average in intelligence.

_____ He believes that I am slightly below average in intelligence.

_____ He believes that I am average in intelligence.

_____ He believes that I am slightly above average in intelligence.

_____ He believes that I am above average in intelligence.

_____ He believes that I am very much above average in intelligence.

64. I believe this person feels that I just wouldn't fit into his circle of friends.

_____ strongly agree

_____ agree

_____ somewhat agree

_____ undecided

_____ somewhat disagree

_____ disagree

_____ strongly disagree

65. I believe this person would enjoy having a friendly chat with me again.

_____ strongly disagree

_____ disagree

_____ somewhat disagree

_____ undecided

_____ somewhat agree

_____ agree

_____ strongly agree

66. I believe he feels that we could never establish a personal friendship with each other.

_____ strongly agree
_____ agree
_____ somewhat agree
_____ undecided
_____ somewhat disagree
_____ disagree
_____ strongly disagree

67. I believe he feels that it would be difficult to meet and talk with me again.

_____ strongly disagree
_____ disagree
_____ somewhat disagree
_____ undecided
_____ somewhat agree
_____ agree
_____ strongly agree

68. I believe this person feels that I could be a friend of his.

_____ strongly agree
_____ agree
_____ somewhat agree
_____ undecided
_____ somewhat disagree
_____ disagree
_____ strongly disagree

SRA EMPLOYMENT INTERVIEW
QUESTIONNAIRE

PART II

Name: _____

Social Security No.: _____

The following questions are designed to double check your general impressions of Mr. Holtrop. Please check (✓) one response to each question and note that the alternatives sometimes appear in reverse order.

69. How truthful do you think the responses provided by Mr. Holtrop were during the interview:

_____ Not truthful at all

_____ Somewhat less than truthful

_____ Somewhat truthful

_____ Very truthful

70. How dissimilar (different) were Mr. Holtrop's verbal messages from his nonverbal messages during the interview:

_____ Not dissimilar at all

_____ Somewhat dissimilar

_____ Dissimilar

_____ Very dissimilar

71. How friendly did you perceive Mr. Holtrop to be during the interview?

_____ Very friendly

_____ Friendly

_____ Somewhat unfriendly

_____ Not friendly at all

72. In general, how trustworthy do you think Mr. Holtrop is?

_____ Very untrustworthy

_____ Somewhat untrustworthy

_____ Somewhat trustworthy

_____ Very trustworthy

73. How consistent were Mr. Holtrop's facial expressions, gestures, and body movements with the meanings of the words he spoke during the interview?

_____ Very consistent

_____ Somewhat consistent

_____ Somewhat inconsistent

_____ Very inconsistent

74. How sociable did you perceive Mr. Holtrop to be during the interview?

_____ Not sociable at all

_____ Somewhat unsociable

_____ Sociable

_____ Very sociable

The following information will not affect your evaluation for the present job. It may help us to determine which of our current projects and in what capacity you could most comfortably serve.

75. Have you ever worked in an organization providing professional services to:

a. Minority persons? _____ Yes _____ No

b. Handicapped persons? _____ Yes _____ No

c. Elderly persons? _____ Yes _____ No

(If you checked the "No" response to each of the above, go to question #79)

76. If your response was "Yes" to any of the options in question #75, how long have you worked with:

a. Minority persons? _____ Yrs. _____ Months

b. Handicapped persons? _____ Yrs. _____ Months

c. Elderly persons? _____ Yrs. _____ Months

77. Briefly describe the nature of the duties you performed.

78. Where were you employed in this capacity?

_____
Name of firm or agency

_____
Address of firm or agency

79. Have you ever maintained a regular social relationship with:

a. A minority person _____ Yes _____ No

b. A handicapped person _____ Yes _____ No

c. An elderly person _____ Yes _____ No

80. If your response was "Yes" to any of the options in question #79, briefly describe the nature of this relationship(s). For example, what type of relationship(s) did you have and how frequently did you interact with this individual(s)?

BIBLIOGRAPHY

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Allen, K.H., & Cinsky, M.E. General characteristics of the disabled population. Social Security Survey of the Disabled: 1966, Report Number 19, 1-46.

Altman, I., & Taylor, D.A. Social penetration: The development of interpersonal relationships. New York: Holt, Rinehart and Winston, 1973.

Argyle, M. Social interaction. New York: Atherton Press, 1969.

Argyle, M., Alkema, F., & Gilmour, R. The communication of friendly and hostile attitudes by verbal and nonverbal signals. European Journal of Social Psychology, 1971, 1, 385-402.

Argyle, M., & Kendon, A. The experimental analysis of social performance. Advances in Experimental Social Psychology, 1967, 3, 55-98.

Argyle, M., Salter, V., Nicholson, H., Williams, M., & Burgess, P. The communication of inferior and superior attitudes by verbal and nonverbal signals. British Journal of Social and Clinical Psychology, 1970, 9, 222-231.

Bales, R.F. Interaction process analysis. In D.L. Sills (Ed.), International encyclopedia of the social Sciences. New York: Crowell-Collier and Macmillan, 1968, 465-471.

Bales, R.F. Interaction process analysis. Reading, Mass.: Addison-Wesley, 1950.

Berger, C.R. The acquaintance process revisited: Explorations in initial interaction. Paper presented to the Annual Convention of the Speech Communication Association, New York, 1973.

Berger, C.R., & Calabrese, R.J. Some explorations in initial interaction and beyond: Toward a developmental theory in interpersonal communication. Human Communication Research, 1975, 1, 99-112.

Berger, C.R., & Larimer, M.W. When beauty is only skin deep: The effects of physical attractiveness, sex and time on initial interaction. Paper presented to the annual convention of the International Communication Association, New Orleans, 1974.

Berkowitz, L. Responsibility, reciprocity, and social distance in help-giving: An experimental investigation of English social class differences. Journal of Experimental Social Psychology, 1968, 4, 46-63.

Bettinghaus, E.P. Persuasive communication. New York: Holt, Rinehart and Winston, 1973.

Blalock, H.M. Theory construction: From verbal to mathematical formulations. Englewood Cliffs, N.J.: Prentice-Hall, 1969.

Borgatta, E.F. A systematic study of interaction process scores, peer and self-assessments, personality and other variables. Genetic Psychology Monographs, 1962, 65, 219-291.

Brooks, W.D., & Emmert, P. Interpersonal communication. Dubuque, Iowa: Wm. C. Brown Company, 1976.

Bugental, D.E., Kaswan, J.W., Love, L.R., & Fox, M.N. Child versus adult perception of evaluative messages in verbal, vocal, and visual channels. Developmental Psychology, 1970, 2, 367-375.

Burgoon, J.K., & Saine, T. The unspoken dialogue: An introduction to nonverbal communication. Boston: Houghton Mifflin Company, 1978.

Byrne, D. The attraction paradigm, New York: Academic Press, 1971.

Byrne, D., & Nelson, D. Attraction as a linear function of proportion of positive reinforcements. Journal of Personality and Social Psychology, 1965, 1, 659-663.

Carter, L.F. Evaluating the performance of individuals as members of small groups. Personnel Psychology, 1954, 7, 477-484.

Clatterbuck, G.W. Attributional confidence and uncertainty in initial interaction. Human Communication Research, 1979, 5:2, 147-157.

Cohen, J. Statistical power analysis for the behavioral sciences.

Comer, R.J., & Piliavin, J.A. As others see us: Attitudes of physically handicapped and normals toward own and other groups. Rehabilitation Literature, 1975, 36, 206-221, 225.

Condon, W.S., & Ogston, W.D. Sound film analysis of normal and pathological behavior patterns. Journal of Nervous and Mental Disease, 1966, 143, 338-347.

Couch, A.S. Psychological determinants of interpersonal behavior. Unpublished doctoral dissertation, Harvard University, 1960. Cited in A. Mehrabian, & S. Ksionzky, Some determiners of social interaction, Sociometry, 1972a, 35, 588-609.

Cozby, P.C. Self-disclosure, reciprocity and liking. Sociometry, 1972, 35, 151-160.

Cronbach, L.J. Coefficient alpha and the internal structure of tests. Psychometrika, 1951, 16, 297-334.

Davis, F. Deviance disavowal: The management of strained interaction by the visibly handicapped. Social Problems, 1961, 9, 121-132.

Dibner, A.S. Cue-counting: A measure of anxiety in interviews. Journal of Consulting Psychology, 1956, 20, 475-478.

Ekman, P. & Friesen, W.V. The repertoire of nonverbal behavior: Categories, origins, usage, and coding. Semiotica, 1969, 1, 49-98.

Ekman, P., & Friesen, W.V. Head and body cues in the judgment of emotion: A reformulation. Perceptual and Motor Skills, 1967, 24, 711-724.

Festinger, L. A theory of social comparison processes. Human Relations, 1954, 7, 117-140.

Foa, U.G. Convergences in the analysis of the structure of interpersonal behavior. Psychological Review, 1961, 68, 341-353.

Fontes, N.E., Miller, G.R., & Kaminski, E.P. Communication barriers between handicapped and nonhandicapped interactions: Identification and removal. Unpublished manuscript, Department of Communication, Michigan State University, 1978.

Frujda, N.H., & Philipszoon, E. Dimensions of recognition of expression. Journal of Abnormal and Social Psychology, 1963, 66, 45-51.

Fromm-Reichmann, F. Psychoanalysis and psychotherapy: Selected papers of Frieda Fromm-Reichmann. D.M. Bullard (Ed.). Chicago: University of Chicago Press, 1959.

Fujimoto, E.K. The comparative power of verbal and nonverbal symbols. Unpublished doctoral dissertation, Ohio State University, 1971. Cited in J.K. Burgoon, & T. Saine, The unspoken dialogue: An introduction to nonverbal communication. Boston: Houghton Mifflin Company, 1978.

Glaser, B., & Strauss, A. The discovery of grounded theory. Chicago: Aldine, 1967.

Goffman, E. Stigma: Notes on the management of spoiled identity. Englewood Cliffs, N.J.: Prentice-Hall, 1963.

Goffman, E. The presentation of self in everyday life. New York: Doubleday Press, 1959.

Gouldner, A.W. The norm of reciprocity: A preliminary statement. American Sociological Review, 1960, 25, 161-178.

Harrison, R.P. Beyond words: An introduction to nonverbal Communication. Englewood Cliffs, N.J.: Prentice-Hall, 1974.

Hays, W.L. Statistics for psychologists. New York: Holt, Rinehart & Winston, 1963.

Heider, F. The psychology of interpersonal relations. New York: John Wiley, 1958.

Heise, D.R. Causal analysis. New York: John Wiley & Sons, 1975.

Homans, G.C. Social behavior: Its elementary forms. New York: Harcourt, Brace and World, Inc., 1961.

Izard, C.E. The emotions and emotion constructs in personality and culture research. In R.B. Cattell (Ed.), Handbook of modern personality theory. Chicago: Aldine, 1968.

Jones, E.E., Kanouse, D.E., Kelley, H.H., Nisbett, R.E., Valins, S., & Weiner, B. Attribution: Perceiving the causes of behavior. Morristown: General Learning Press, 1972.

Jourard, S. Knowing, liking, and the 'dyadic effect' in men's self-disclosure. Merrill Palmer Quarterly of Behavior and Development, 1960, 6, 178-186.

Kelley, H.H. The processes of causal attribution. American Psychologist, 1973, 28, 107-128.

Kendon, A. Some observations on interactional synchrony. A preliminary report, Cornell University, 1968. Cited in M. Argyle, Social interaction. New York: Atherton Press, 1969.

Keppel, G. Design and analysis: A researcher's handbook. Englewood Cliffs, N.J.: Prentice-Hall, 1973.

Kleck, R. Physical stigma and task oriented interactions. Human Relations, 1969, 22, 53-60.

Kleck, R. Physical stigma and nonverbal cues emitted in face-to-face interactions. Human Relations, 1968, 21, 19-28.

Kleck, R. Emotional arousal in interactions with stigmatized persons. Psychological Reports, 1966, 19, 1226.

Kleck, R., Ono, H., & Hastorf, A. The effects of physical deviation upon face-to-face interaction. Human Relations, 1966, 19, 425-436.

Krippendorff, K. Information theory. In G.J. Hanneman, & W.J. McEwen (Eds.), Communication and behavior. Reading, Massachusetts: Addison-Wesley, 1975, 351-389.

Lalljee, M., & Cook, M. Uncertainty in first encounters. Journal of Personality and Social Psychology, 1973, 26, 137-141.

Lampel, A.K., & Anderson, N.H. Combining visual and verbal information in an impression-formation task. Journal of Personality and Social Psychology, 1968, 9, 1-6.

Longabaugh, R. The structure of interpersonal behavior. Sociometry, 1966, 29, 441-460.

Lopez, F.M. Personnel interviewing: Theory and practice. New York: McGraw-Hill, 1975.

Lorr, M., & Suziedelis, A. Modes of interpersonal behavior. British Journal of Social and Clinical Psychology, 1969, 8, 124-132.

Mahl, G.F. Gestures and body movements in interviews. Paper presented at the Third Research in Psychotherapy Conference, Chicago, 1966. Cited in P. Ekman, & W.V. Friesen, The repertoire of nonverbal behavior: Categories, origins, usage, and coding. Semiotica, 1969, 1, 49-98.

Marinelli, R.P. State anxiety in interactions with visibly disabled persons. Rehabilitation Counseling Bulletin, 1974, 18, 72-77.

Marinelli, R.P., & Kelz, J.W. Anxiety and attitudes toward visibly disabled persons. Rehabilitation Counseling Bulletin, 1973, 17, 198-205.

Matarazzo, J.D., Wiens, A.N., & Saslow, G. Studies of interview speech behavior. In L. Krasner, & L.P. Ullman (Eds.), Research in behavior modification: New developments and implications. New York: Holt, Rinehart and Winston, 1965, 179-210.

McCain, T.A., Repensky, G.R. The effect of camera shot on interpersonal attraction for comedy performers. Paper presented to the Annual Convention of the Speech Communication Association, Chicago, 1972. Cited in J.C. McCroskey, & T.A. McCain, The measurement of interpersonal attraction. Speech Monographs, 1974, 41:3, 261-266.

McCroskey, J.C., & McCain, T.A. The measurement of interpersonal attraction. Speech Monographs, 1974, 41:3, 261-266.

McMahan, E.M. Nonverbal communication as a function of attribution in impression formation. Communication Monographs, 1976, 43, 287-294.

Mehrabian, A. Nonverbal communication. In J.K. Cole (ED.), Nebraska symposium on motivation. Lincoln, Nebraska: University of Nebraska Press, 1972a, 107-161.

Mehrabian, A. Nonverbal communication. Chicago: Aldine-Atherton, 1972b.

Mehrabian, A. Verbal and nonverbal interaction of strangers in a waiting situation. Journal of Experimental Research in Personality, 1971a, 5, 127-138.

Mehrabian, A. Silent messages. Belmont, Calif.: Wadsworth, 1971b.

Mehrabian, A. Methods and designs: Some referents and measures of nonverbal behavior. Behavioral Research Methods and Instrumentation, 1969, 1, 203-207.

Mehrabian, A., & Ferris, S.E. Inference of attitudes from nonverbal communication in two channels. Journal of Consulting Psychology, 1967, 31, 248-252.

Mehrabian, A., & Ksionzky, S. Some determiners of social interaction. Sociometry, 1972, 35, 588-609.

Mehrabian, A., & Ksionzky, S. Models for affiliative and conformity behavior. Psychological Bulletin, 1970, 74, 110-126

Mehrabian, A., & Reed, H. Some determinants of communication accuracy. Psychological Bulletin, 1968, 70, 365-381.

Mehrabian, A., & Wiener, M. Decoding of inconsistent communications. Journal of Personality and Social Psychology, 1967, 6, 109-114.

Miller, G.R., & Steinberg, M. Between people: A new analysis of interpersonal communication. Chicago: Science Research Associates, 1975.

Moffatt, T.L. Selection interviewing for managers. New York: Harper & Row Publishers, 1979.

Morgan, H.H., & Cogger, J.W. The interviewer's manual. New York: Drake-Beam & Associates, Inc., 1980.

Osgood, C.E. Dimensionality of the semantic space for communication via facial expressions. Scandinavian Journal of Psychology, 1966, 7, 1-30.

Osgood, C.E., Suci, G.J., & Tannenbaum, P.H. The measurement of meaning. Urbana, Illinois: University of Illinois Press, 1957.

Park, L.D. Barriers to normality for the handicapped adult in the United States. Rehabilitation Literature, 1975, 36, 108-111.

Rehabilitation service manual. Department of H.E.W., Office of Human Development, Rehabilitation Services Administration, 1976.

Report of the comprehensive service needs study. Washington, D.C.: The Urban Institute, 1975.

Richardson, S.A. Attitudes and behavior toward the physically handicapped. In D. Bergsma, & A. Pulver (Eds.), Developmental disabilities: Psychologica and social implications. New York: Alan R. Liss, Inc., 1976, 15-34.

Rosenfeld, H.M. Nonverbal reciprocation of approval: An experimental analysis. Journal of Experimental Social Psychology, 1967, 3, 102-111.

Schachter, S. The psychology of affiliation: Experimental studies of the sources of gregariousness. Stanford: Stanford University Press, 1959.

Schachter, S., & Burdick, H. A field experiment on rumor transmission and distortion. Journal of Abnormal Social Psychology, 1955, 50, 363-371.

Scheffé, H. The analysis of variance. New York: Wiley, 1959.

Scheflen, A.E. Stream and structure of communicational behavior. Commonwealth of Pennsylvania: Eastern Pennsylvania Psychiatric Institute, 1965. Cited in M. Argyle, Social interaction. New York: Atherton Press, 1969.

Sermat, V., & Smyth, M. Content analysis of verbal communication in the development of a relationship: Conditions influencing self-disclosure. Journal of Personality and Social Psychology, 1973, 26, 332-346.

Shapiro, J.G. Responsivity to facial and linguistic cues. Journal of Communication, 1968, 18, 11-17.

Siegel, S. Nonparametric statistics for the behavioral sciences. New York: McGraw-Hill, 1956.

Siller, J., Chipman, A., Ferguson, L., & Vann, D.H. Attitudes of the nondisabled toward the physically disabled. New York: New York University School of Education, 1967.

Siller, J., Ferguson, L., Vann, D.H., & Holland, B. Structure of attitudes toward the physically disabled: Disability factor scales - amputation, blind, cosmetic conditions. New York: New York University School of Education, 1967.

Snider, J.G., & Osgood, C.E. (Eds.). Semantic differential technique. Chicago: Aldine, 1969.

Spielberger, C.D. (Ed.). Anxiety and behavior. New York: Academic Press, 1966.

Spielberger, C.D., Gorsuch, R.L., & Lushene, R.E. Manual for the state - trait anxiety inventory. Palo Alto, Calif.: Consulting Psychologists Press, Inc., 1970.

Taylor, D.A., Altman, I., & Wheeler, L. Self-disclosure in isolated groups. Journal of Personality and Social Psychology, 1973, 26, 39-47.

Thibaut, J.W., & Kelley, H.H. The social psychology of groups. New York: Wiley, 1959.

Tomkins, S.S. Affect, imagery, consciousness (vol. 2). New York: Springer, 1963.

Tomkins, S.S. Affect, imagery, consciousness (vol. 1). New York: Springer, 1962.

Tomkins, S.S., & McCarter, R. What and where are the primary affects? Some evidence for a theory. Perceptual and Motor Skills, 1964, 18, 119-159.

Triandis, H.C., Vassiliou, V., & Nassiakou, M. Three cross-cultural studies of subjective culture. Journal of Personality and Social Psychology, 1968, 8, Monograph Supplement, No. 4.

Vande Creek, L., & Watkins, J.T. Responses to incongruent verbal and nonverbal emotional cues. Journal of Communication, 1972, 22, 311-316.

Wakshlag, J. The effect of camera angle and image size on source credibility and interpersonal attraction. Unpublished M.S. thesis, Illinois State University, 1973. Cited in J.C. McCroskey, 7 McCain, T.A. The measurement of interpersonal attraction. Speech Monographs, 1974, 41:3, 261-266.

Wiener, M., Devoe, S., Rubinow, S., & Geller, J. Nonverbal behavior and nonverbal communication. Psychological Review, 1972, 79, 185-214.

Wiener, M., & Mehrabian, A. Language within language: Immediacy, a channel in verbal communication. New York: Appleton-Century-Crofts, 1968.

Wilder, C.S. Prevalence of selected impairments, United States, 1971. U.S. National Center for Health Statistics, Vital and Health Statistics, 1975, 99, Series 10, 1-64.

Wilder, C.S. Chronic conditions and limitations of activity and mobility. U.S. National Center for Health Statistics, Vital and Health Statistics, 1971, 61, Series 10, 1-26.

Williams, F., & Sundene, B. Dimensions of recognition: Visual vs. vocal expression of emotion. Audio Visual Communications Review, 1965, 13, 44-52.

Worthington, M.E. Personal space as a function of the stigma effect. Environment and Behavior, 1974, 6, 289-294.

Worthy, M., Gary, A.L., & Kahn, G.M. Self-disclosure as an exchange process. Journal of Personality and Social Psychology, 1969, 13, 59-64.